VOL. 161 — NO. 7 AUGUST 12, 1961

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

As Mrs. Barbara Patterson, Wichita, Kan. Southwestern Bell Telephone Co. operator (lower right) shows how a long distance call is made, the Polson family, AT&T's 2-millionth shareholders, observe. Standing is Hugh, local pharmacist; (seated, left to right): Kay Louise, 9, and Stephen Hugh, 7, for whose education their parents have invested; and Mrs. Polson. See story, page 51.

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13,850 Is Paid

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- Withstands high DC current.

FLASHES AND PLUGS

A CALL FOR "TOM KITTEN," MAYBE? "Hello," snapped an official voice in the night.

"This the animal hospital?" asked the caller.

"No, this is the White House," the voice answered.

"Is this SOuth 5-6855?" persisted the undaunted inquisitor.

"No, this is the White House," was the firm answer.

Still unsatisfied, the caller asked, "Is Mr. Stevenson there?"

This time when the *very* firm voice responded, "No, this is the *White House*," the caller was either convinced, or decided to give up, for he hung up.

How a caller, trying to reach an animal hospital, got on President Kennedy's hot line, supposedly the country's most secure telephone—the one that is linked through the Pentagon to all the Strategic Air Command bases ringing the world—was, at least, when the New York *Herald Tribune* reported the incident on Aug. 2, an unsolved mystery.

True, the President had leaped to answer what might have been an emergency. However, there *is* an animal hospital in Washington, D. C. area with the telephone number SO 5-6855; and that establishment has in its employ a kennelman named Ernest Stevenson—these facts check out. It happened that Stevenson was off duty the day of the call.

As for the routing of the mysterious telephone call, obviously, *somebody*, or *some wires*, got crossed. The kennel has since been besieged with calls asking for the President. Their switchboard operator reported that recently, *they* had had trouble with their telephone—*they* heard *other* conversations.

But as for hearing a voice with a distinct Massachusetts flavor (like that of JFK), the operator, of course, had not listened!

•

SOPPIN' 'N BLOTTIN'. Though the British are not rated as the world's most chatty on the telephone, they nonetheless find themselves now and then in the same situations as do the chattiest. Preparatory to handling such situations, a department store in England displayed this sign:

"Extra large bath towels. Just the thing to wear for answering the telephone."

—from *The New Dawn*, published in Manchester, England.

•

EVEN THE SHELLS ARE HEP. The sea shell's built-in "voices" were no mystery to one twentieth century child, accustomed to communications advances.

When he held a sea-shell to his ear, he reported, "I keep getting commercials!"

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

1901 — 60 years — 1961

August 12, 1961

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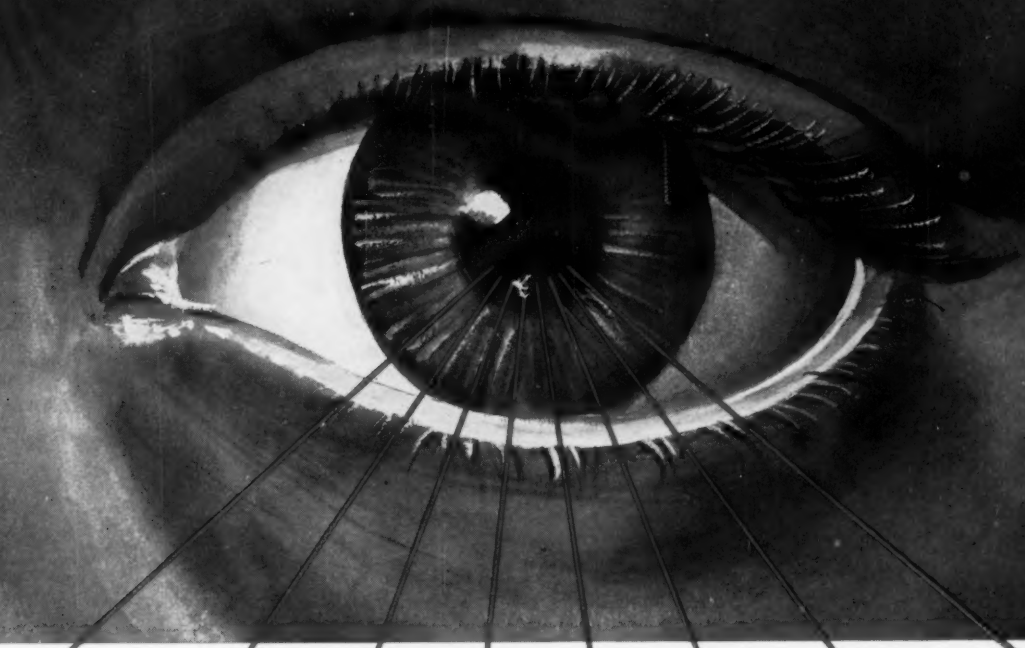
When planning for the future...
...look to the past



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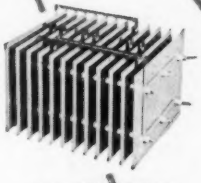

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*Trade Name of Aluminum Company of America

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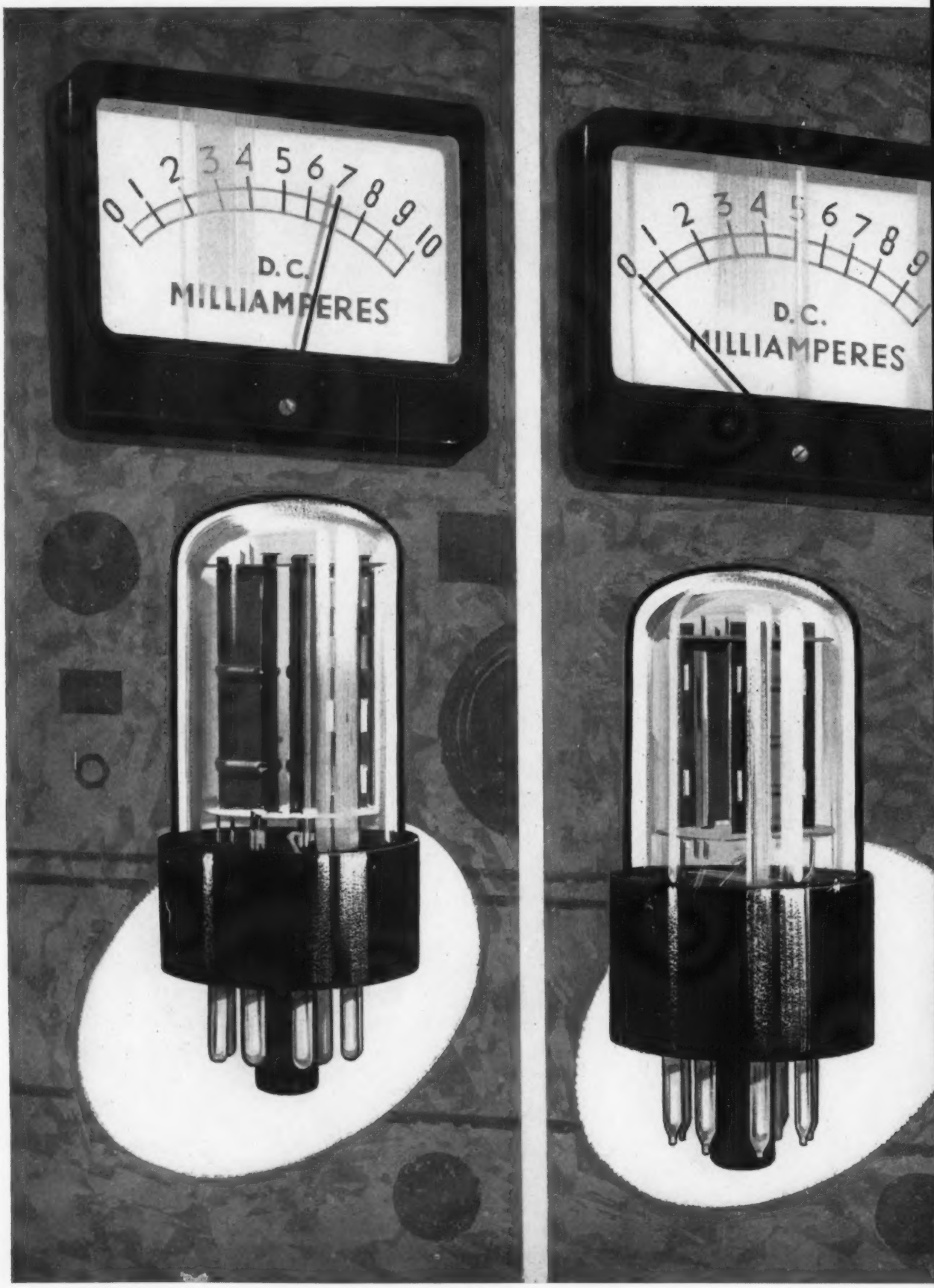
P D MINE TO MARKET


0 1 2 3 4 5 6 7 8 9 10
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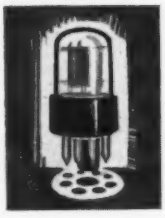
WHAT PRICE SERVICE?



...or the case of the tapered tube pins!

Keeping customers happy is a great source of satisfaction to us. That's one of the reasons why we see to it that you're never more than 24 hours away from full repair or replacement service . . . and why we initiated "plug-in" design.

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As a case in point, take the 6SN7 and 6SL7 tubes used in some of our equipment. In 1960, the tube manufacturers changed from round to pointed base pins. Fine—except there was one unique difficulty. Since the round base pin type had been in service for a long time, replacement with pointed base pin tubes often resulted in high resistance contact. The tube socket contacts, which had spread slightly during the long life of the original tube, were not meeting the new pointed pins. So, we warned our customers, made special notes in our service manuals, and bought up thousands of the round-pin type so we could meet all field replacement requirements.

Possibly a small thing in itself, but if you take care of the small things, the big things take care of themselves—to *everyone's* benefit.

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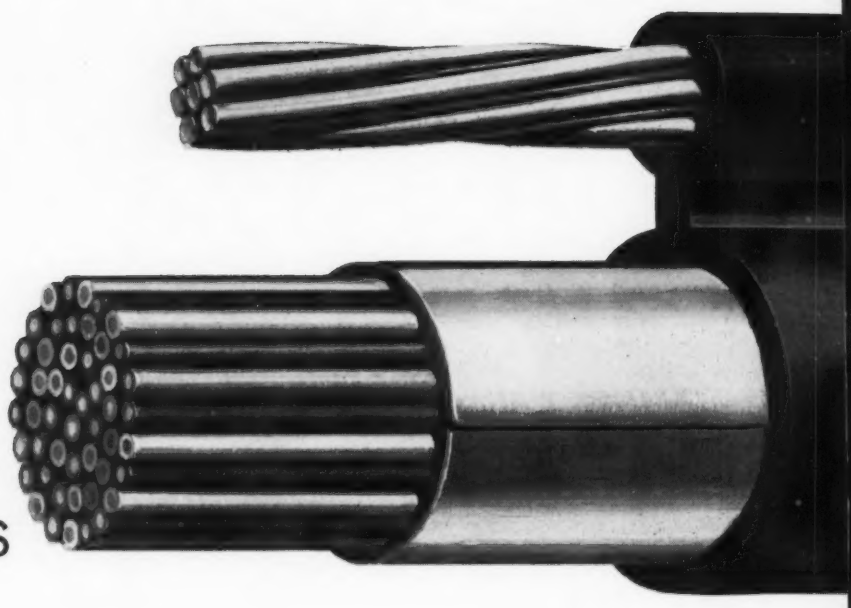

GENERAL CABLE'S

FIGURE 8 QUALPETH*

ends cable spinning...saves you time and money

Here's a great new cable that saves you time and money on outside plant construction. Figure 8 Qualpeth combines the cable and messenger in a single jacket of tough polyethylene. This revolutionary cable makes installation a one-step process. The entire cable-spinning operation is eliminated. Your lineman merely clamps Figure 8 to the pole.

Figure 8 is equipped with your choice of aluminum or copper shield. Normal splicing methods and closures are used. And, best of all, Figure 8 costs less installed than cable and messenger installed separately!

We're saving a copy of the Figure 8 Qualpeth catalog for you. To get your free copy, write: Automatic Electric Sales Corporation, Northlake, Illinois. And the next time you want to extend your outside plant, contact your AE representative. He'll give you all the money-saving details on Figure 8 Qualpeth.

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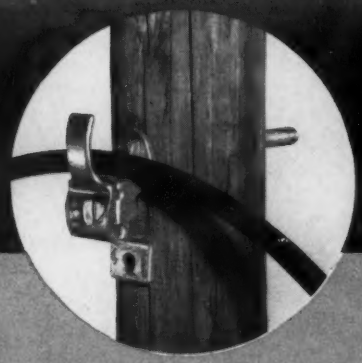
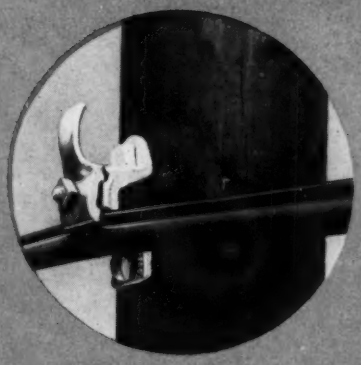
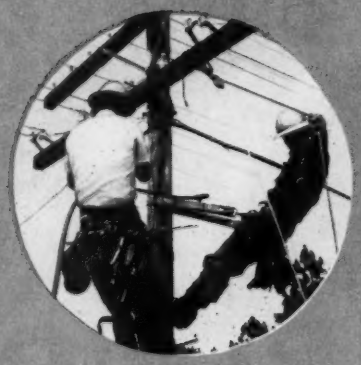
GENERAL SYSTEM



SPECIAL SUPPORT MAKES INSTALLATION EASY
This specially designed clamp is bolted to the pole to serve you two ways. First, the cable is strung over the top of the clamp for easy handling. After tensioning, the lineman just clamps Figure 8 to the pole, and the job's done.





CREW INSTALLS FIGURE 8 FASTER
At a recent installation of Figure 8, the crew saved so much time that the in-place cost was reduced by 10% over the cost of the present cable-spinning methods.

warehouses:

Northlake	2915 Moore St.	2360 N. W. Quimby St.	158 Corliss Avenue	2021 Main St.
Illinois	Richmond 21, Va.	Portland 10, Ore.	Johnson City, N. Y.	Kansas City 8, Mo.
Fillmore 5-7111	ELgin 8-9280	CApital 3-7244	RA 9-4996	HArrison 1-7575

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This Automatic Electric Type 86 telephone—now distributed by Leich—opens up big profit opportunities for you. Its easy operation, modern design, and expanded services help you sell 10-A1 key systems to your subscribers.

With the Type 86, subscribers can place, answer, and hold calls for up to 5 central office lines! Used with AE Intercom Service, it gives new facilities on inside and outside communications.

Its trim, compact design makes it attractive and easy to use. Your customers have a choice of 6 beautiful colors. For Type 86 phones, call Leich. We'll be happy, indeed, to give your order prompt attention.

TYPE 86 FEATURES

- *You can place, answer, and hold calls for up to 5 central office, PBX, or private lines.*
- *Lighted plastic pushbuttons are also line signals.*
- *Choice of automatic ringer or buzzer signaling (constant or intermittent) on central office lines.*
- *Tie lines for linking one key system with another (distant) key system.*
- *Manual (code) signaling, ring-down signaling, selective (dial) signaling, or automatic signaling on intercom, PBX, or private lines.*
- *Automatic or manual exclusion of all extensions on line.*

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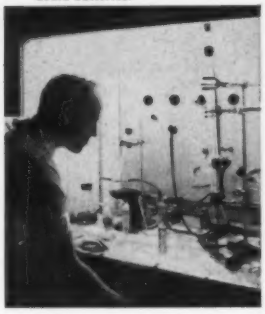
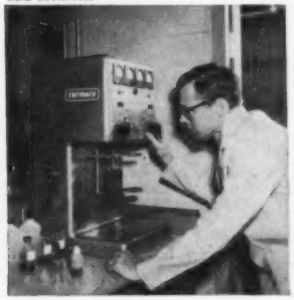
Analyzing nature of impurities in battery material—one of many special projects carried on by Gould-National technicians to increase the life of Gould batteries.



Gould-National Battery Research Center in Minneapolis, Minn., and quality control facilities at Kankakee, Ill., and Trenton, N.J. assure you that only the highest quality is built into Gould batteries.

Tensile Test Unit studies tensile and compressive strengths and percentage of elongation of various materials—used to develop stronger containers for Gould batteries.

Quantitative Analysis Unit determines percentage of element concentration in metal samples. Currently used in study to eliminate self-discharge rate of lead-acid batteries.



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CHARGERS—A full line of specially engineered stationary charging equipment available: float, filtered and unfiltered. Ask about the new FLOAT-O-MATIC charger.

Write for detailed information, or call your local Gould office listed in the Yellow Pages under "Batteries, Industrial." Sales offices and agents in continental United States and overseas.

NEW Gould Rechargeable Flashlight and Lantern Batteries

Of nickel-cadmium construction, these batteries can be recharged to full capacity over 250 times . . . and each cycle gives 50% more continuous, bright light than ordinary cells. Ask for free literature.

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IN THE NATION'S CAPITAL

BY LAWRENCE J. HOGAN
WASHINGTON EDITOR

NASA-AT&T space contract analyzed. FCC takes steps to move communication satellite program on its way. AT&T overseas network under scrutiny by Justice Department's antitrust division. Matter of rights to Bell inventions developed in space program explored at NASA press meet. FCC reorganization law goes to White House for signing.

EVEN THOUGH the commercial communications space satellites are not yet in orbit, there were plenty of other developments launched on the Washington scene the past few days to suggest a rather dizzy merry-go-round. First, there was the news announced by the National Aeronautics & Space Administration on July 28 (TELEPHONY, Aug. 5, p. 57) to the effect that the contract had finally been signed with the American Telephone & Telegraph Co. to launch the first satellites into space in 1962.

Dr. Robert C. Seamans Jr., associate administrator of NASA, and Frederick R. Kappel, president of AT&T, signed the document on July 27. Under the terms of the agreement, AT&T will design and build the satellites at its own expense, and will reimburse NASA for the costs of the facilities and services which NASA will furnish in connection with the project. These will include Thor-Delta launch vehicles, launching and tracking facilities, and range and launch crew services. The satellites will be launched from Cape Canaveral, Fla. The agreement also calls for NASA to provide AT&T with telemetry and spacecraft acquisition information received by its Minitrack tracking network.

AT&T will report to NASA the results of the communications experiments and significant information developed during evaluation of the experiments which may directly bear on other communications satellite programs. All experimental data and project results will be made available by NASA to the world scientific community.

The spherically shaped satellites will weigh 125 pounds each. They will be launched into elliptical orbits approximately 600 miles from the earth at perigee and 3,000 miles at apogee. Inclination to the equator will be 45 degrees. Their power supply will be solar cells and nickel-cadmium storage batteries. Wide-band communications experiments—television, two-way telephone, radio, and telegraphy—will be transmitted between the AT&T ground locations located at Rumford, Me., and Holmdel, N. J., via the satellites.

A scientific radiation experiment will be aboard each of the satellites which is designed to measure radiation damage to solar cells and other solid state components as it passes through the lower Van Allen Belt at apogee. Signals will be beamed from the ground stations to the satellites on a frequency of 6,390 megacycles at 2 kilowatts. A single transponder and three-watt traveling wave tube will transmit the signal to the ground stations on a frequency of 4,170 megacycles.

The Goddard Space Flight Center of NASA and the Bell Telephone Laboratories of the AT&T have been assigned management responsibilities for the project. Acting project manager for the Goddard SFC is Robert J. Mackey. E. F. O'Neill is project manager for Bell Laboratories. A project review committee has been established for the purpose of resolving problems which cannot be handled at the project manager level. The chairman is Dr. Seamans, NASA associate administrator. Members of the committee are: Julius P. Molnar, executive vice president of Bell Laboratories; Leonard Jaffe, chief of Communications Satellite Programs, NASA; and another representative from Bell Laboratories, not yet designated.

NASA will probably bill AT&T 6 million dollars for each satellite the government launches. Since AT&T is expected to send aloft about six satellites, the government's bill may run as high as 36 million dollars. AT&T's total cost for building, launching, and operating its experimental satellites may run as much as 175 million dollars. AT&T's spherically shaped satellites will weigh 125 pounds with power being supplied by solar cells and storage batteries. Project Relay, for which Radio Corp. of America is building communications satellites, is designed to determine the feasibility and technology of satellite communications systems. France, England, and other nations are expected to participate in the program.

The satellites to be built by AT&T and RCA are experimental only. The government has not authorized any company to use satellites commercially, although the Federal Communications Commission has taken preliminary steps that may ultimately permit a 10-company combine, including AT&T and RCA, to transmit via satellites. The FCC had authorized AT&T, Collins Radio Co., International Telephone & Telegraph Corp., and Westinghouse Electric Corp. to conduct satellite experiments. AT&T is the only company reported to have a satellite about ready

for launching. RCA did not require FCC authorization since its work will be for a governmental agency.

The President Speaks Up

With everyone agreed that private ownership is the most satisfactory system for getting the communications satellite program in orbit, the decks are being cleared for action.

President Kennedy, after evaluating the data presented to him by the National Aeronautics & Space Council headed by Vice President Johnson, broke his silence on the subject and added his endorsement to the free enterprise approach. As the President sees it, the program would include eight points as reported in TELEPHONY, Aug. 5, p. 56.

Kennedy indicated that the federal government might establish its own separate satellite communications system if the government's requirements could not be met by the commercial system.

FCC Elaborates

Shortly after the President's statement, the Federal Communications Commission reaffirmed its ruling denying equipment manufacturers an opportunity to participate in the program (TELEPHONY, Aug. 5, p. 43).

The FCC also called upon the 10 communications companies participating in the program to form a committee to plan for the joint development, ownership, construction and operation of the system (TELEPHONY, Aug. 5, p. 40). The FCC wants a report from this committee by Oct. 13.

The companies involved include: Mackay Radio, Inc.; Commercial Cable Co.; All American Cables & Radio, Inc.; and Globe Wireless Ltd.—all affiliates of American Cable & Radio Corp.; and the following other companies: American Telephone & Telegraph Co.; Hawaiian Telephone Co.; Press Wireless, Inc., (an affiliate of the *New York Times*); Radio Corp. of Puerto Rico; RCA Communications, Inc., (a subsidiary of Radio Corp. of America); South Puerto Rico Sugar Co.; Tropical Radio Telegraph Co., (a subsidiary of United Fruit Company); U. S. Liberia Radio Corp. (a subsidiary of Firestone Tire & Rubber Co); and Western Union Telegraph Co.

The commission also set forth a program of work for the new committee to consider which dovetails with President Kennedy's outlined objectives:

The commercially operated system should provide the potential for global coverage.

Ownership of communications facilities should be shared with interested foreign governments.

All foreign governments, irrespective of their participation in the ownership, should be able to use its facilities.

It should be insured that no one company will be permitted to dominate the system.

Present and future international common carriers should be permitted to use the system.

Recent Quotations of Telephone Stock

	8/4/61 BID	8/4/61 ASKED	6/29/61 BID	6/29/61 ASKED	Current Indicated Dividend Rate
Anglo-Canadian Tel. Co.	44½	46½	43	46	$1.20
British Columbia Tel. Co.	48½	50½	48	49½	2.20
California Interstate Tel. Co.	22¼	23¾	21⅛	22⅛	.70
California Pacific Utilities Co.	24½	26½	21	22½	.90
California Water & Tel. Co.	39¾	41	36¼	37½	1.36
Carolina Tel. & Tel. Co.	47	49	45½	48	1.60
Central Tel. Co.	28	30	28¼	30	.88 + Stk.
Chenango & Unadilla Tel. Corp.	27½ Bid		27½ Bid		1.35
Cincinnati & Subn. Bell Tel. Co.	108¾	111	108½	110½	4.50
Citizens Utility Co. "A"	26¾	28¾	28¼	30	Stock Div.
Citizens Utility Co. "B"	24½	26½	26½	28	.60
Commonwealth Tel. Co.	25½	27¼	25½	27	1.00
Florida Tel. Corp. Class A.	28	30	26¼	28	1.00
General Tel. & Elec. Corp. Common	25⅜ Close		26 Last Sale		.76
Hawaiian Tel. Co.	18⅞	19⅞	18⅛	19⅛	.54
Indiana Tel. Corp.	37 Bid		33 Bid		—
Inter-County Tel. & Tel. Co.	27¼	29	27	28½	.72 + Stk.
Inter-Mountain Tel. Co.	20½	22	19¼	21	.80
Jamestown Tel. Corp.	90 Bid		90 Bid		6.00
Lincoln Tel. & Tel. Co.	66½ Bid		66½ Bid		2.60
Lorain Tel. Corp.	36 Bid		35 Bid		1.40 + Stk.
Middle States Tel. Co. of Ill.	35½	37½	35½	37½	.92
North Carolina Tel. Co.	1⅛	1⅝	1⅛	1⅝	—
Northern O. Tel. Co.	*54 Bid		66¼ Bid		2.00
Peoples Tel. Co.	21 Bid		21 Bid		.80
Pioneer Tel. Co.	36 Bid		36 Bid		1.00 + Stk.
Rochester Tel. Co.	28 Last Sale		26⅜ Last Sale		1.00
Southeastern Tel. Co.	24	26	23	25	1.00
Southern Nevada Tel. Co.	43	45½	38	40	1.20
Southern New England Tel. Co.	50½	52	50	51½	2.20
Southwestern States Tel. Co.	30¼	31½	30	31½	1.28
Tel. Service Co. of O. Class A.	25	27½	28	30	.36 + Stk.
Tidewater Tel. Co.	27 Bid		27 Bid		1.40
United Utilities, Inc.	24¾	25¾	25¾	27	.80
West Coast Tel. Co.	33½	34½	34	35¼	1.36
Western Carolina Tel. Co.	12	13	9¾	10¾	.43
Western Light & Tel. Co., Inc.	30½	32	31	32½	1.20
Western Utility Corp.	12⅝	13⅝	11½	12½	.40

*Ex-dividend 25 per cent in stock

The Antitrust Angle

The other extreme in this orbit of developments arose when Lee Loevinger, assistant attorney general in charge of antitrust proceedings, disclosed, on Aug. 2, that the Justice Department is actively considering ordering the AT&T to sell its overseas communications network. Loevinger testified to the Senate Committee on Small Business that the Justice Department's antitrust division is considering the matter. He declined to say when a decision might be made. AT&T control of all overseas telephone calls made from and received in this country came up as Loevinger discussed Justice Department hopes that no single company will dominate the space satellite communications system now under development. Toward the end of his testimony, he remarked that Western Union (which was ordered to divest itself of overseas operations several years ago) was "considerably less monopolistic" than AT&T.

Another witness before the Senate group said that all nations of the world should have a chance for use and ownership interest in any international system of communication developed by the United States. "The very premise of communication by satellites must involve other nations," Donald M. Wilson, deputy director of the U. S. Information Agency, told the Senate Small Business Committee in a prepared statement.

"Every nation must be guaranteed a right of access to the system," Wilson told the Senators. He was asked by the committee how other nations would view a system owned or controlled by one large company or a group of a few large companies. "In our view the impact abroad in this area will depend far more on how we develop and use the system than the identity of the system's proprietor," Wilson said.

NASA Meets the Press

On July 28, Dr. Robert C. Seamans Jr., NASA associate administrator; Dr. Leonard Jaffee, chief of NASA Communications Satellites Programs; and NASA's general counsel, John A. Johnson, held a press conference in

(Continued on page 61)

Annual Review

New Developments in Telephony

By RAY BLAIN, Technical Editorial Director

THIS IS THE fifth article in a series describing various new items of equipment and their application in telephony. The first article appeared in the June 15 issue; the second in the June 22 issue, the third in the July 29 issue and the fourth in the Aug. 5 issue.

Readers desiring additional information on any of the products described should write the manufacturer or to TELEPHONY.

* * *

Telephone Installation on Repair Truck Body. (Fig. 41). A new telephone installation and repair body has been added to the Powers-American line of utility bodies and equipment, manufactured by McCabe-Powers Body Co. The new unit is designed to carry all telephones, tools and materials needed for completing installation and repair jobs on one trip.

The body is equipped to carry 22 telephones, four of which can be displayed to passersby in a curbside compartment having a plastic see-thru section in the compartment door. Sliding trays in rear of the body are provided with elastic hold-downs for 18 telephones and an additional 10-telephone tray can be supplied as optional equipment.

Drawers with adjustable-divider bins, wire reel tray, miscellaneous racks, hooks and bins are furnished as standard equipment for carrying tools and supplies within easy reach—accessible at curbside and rear of body to protect installer from traffic hazards. All drawers and trays have spring-action latches that automatically lock in closed position. Easy-release catches prevent accidental removal of drawers and trays. A ¼ inch sponge rubber covering is provided on bottom of telephone-carrying trays and compartment.

This body is 78 inches long, 41 inches high and 66 inches wide, designed for installation on chassis having cab-to-axle dimension of approximately 40 inches.

Optional equipment includes overhead rack with extension ladder brackets, fully-enclosed step ladder compartment, crossarm storage brackets, light-duty pintle hook, rear bumper, wire reel and accessories to fit specific job needs.

Fig. 41. Telephone installation and repair body.

Fig. 42. Pole aligner.

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Pole Aligner. (Fig. 42). This device manufactured by the Welding Service Co., San Jose, Cal., permits a small crew to set and align poles quickly and safely. The device, called the Flex-Clip, is a clamp that is attached to a pole mast or derrick. This clamp can only move in the same direction as the derrick. It is a spring-loaded clamp that exerts the proper holding pressure on all sizes of poles.

This device when attached to the top of a pole derrick or mast is used in lieu of pike poles to align poles. After the hole is dug, the truck is moved forward about 4 feet. A little more rake is added to the derrick or mast. The pole is snaked and raised until the butt is off the ground. The groundman guides the butt past the side of the truck and then snaps it into the clamp on the top of the mast. The pole is lowered until the butt rests on the bottom of the pole. Tension is maintained on the pole line until the dirt is tamped in the hole.

Only a few precautions are necessary when using this device. Don't make the butt of the pole too heavy. It is necessary to have a free swinging pole so that the groundman can maneuver it easily. Make certain to snap the pole into the clamp prior to lowering it into the hole. This clamp has been designed to permit the pole to be lowered while its jaws are still clamped around the pole. After the pole has started into the hole, the groundman may use a cant hook to turn it in any direction. Steps may be guided through the end of the Flex-Clip as the pole is lowered into the hole.

•

Private Automatic Branch Exchange. (Fig. 43). This Leich Electric Co. 80A Private Automatic Branch Exchange is normally arranged for a total of 18 city trunks, three one-way attendant's inward trunks and a maximum of 80 station lines. One of these lines (232) is used as an attendant out-dial trunk, and another (231) is required for code call answer. Lines 231 and 232 may be used as normal local station lines when not required for the services mentioned above.

The city lines terminate on trunk switches and, normally nine local links are available. The switchboard can be operated with or without a turret, depending upon the customer's requirements. It is also designed to operate over a voltage range of 44 to 56 volts, with an automatic or common battery central office. It may also be adapted to work into a magneto office. The trunk loop limit is the central office loop limit or 1,500 ohms, whichever is less, and the line loop limit is 1,000 ohms, excluding the instrument. However, when transfer of city trunks to predetermined stations is provided for service at night or during periods of power failure, the sum of the central office trunk loop and the loop of the PABX station assigned to the trunk shall not exceed the central office loop limit.

The dial unit switchboard bay is 72 inches wide x 15 inches deep x 72 inches high. It is equipped with lift-off type swinging doors, with locks, both front and rear. The unit houses the power plant (which may be used as a battery eliminator or battery charger), the static type ringing and tone generator, as well as the switching apparatus and fuse panel. It is finished in an attractive gray which blends well with other office furniture. It also has convenient cable openings and terminals. When a battery power supply is used the battery is mounted on an external rack.

Fig. 43. Leich 80-A PABX.

The turret is about 16 inches wide x 17 inches deep x 8 inches high. This turret, produced in an aluminum casting, finished in a neutral gray wrinkled baked enamel, is attractive in any office surroundings. Keys are readily accessible and of reliable design with smooth action. Plastic lamp escutcheons and an extended number plate dial add to the utility and attractiveness of the unit. The panel itself is a dulled phenolic, characteristic of other manual units.

•

Motel-Hotel PABX. (Fig. 44). Motel-hotel service features are available with Leich's 40A and 80A PABX's.

The basic features of these units are:

Message Waiting Service. An extension telephone is provided with a "message waiting" indicating lamp. If an absent guest has a message, the attendant can operate the message waiting key which will start the indicating lamp flashing on the guest's telephone. This indicates that a message is available from the attendant. Universal night answer service is available, but without city trunk transfer.

Station Metering. Facilities for peg count meters for each station are provided which will count the number of city calls that are placed by the guests. The meter operates when the city call answers.

Restricted Station-to-Station Calling. The attendant may restrict PABX stations from calling each other by operating the restriction key on the turret. Extension stations may still receive and originate outside calls but would be restricted from calling other numbers. This feature would normally be put into operation in the late evening hours.

Single Digit PABX Trunk Selection. Provides single digit rotary service to more than one telephone. An example would be dial "5"—maid or valet service—in which more than one phone would be connected to handle the calling traffic.

Toll Diversion Service. Used when PABX stations are permitted to dial direct to central office but are to be automatically restricted from dialing the toll operator and/or toll ticketing codes. The first three digits dialed are monitored and can be arranged to either pass or reject the code being dialed. If a code is wired for restriction, the line-lamp of the trunk being dialed flashes—signaling the operator, who in turn comes into the connection.

(Continued on page 70)

Fig. 44. Motel-hotel PABX.

Fig. 45. Line busy lamp field.

Marketing Makes Money

By R. PARKER SULLIVAN

PART III. Parts I and II appeared in the July 29 and Aug. 5 issues.

EARLIER in our discussion we developed the benefits that could be anticipated from the application of "the marketing attitude," and the fact that such benefits can be realized by all Independent telephone companies, regardless of size. However, it is of particular importance that the marketing effort and the program that is developed to implement it be tailored to meet the individual operating company's situation. Any such effort should begin with a basic plan and should include specific programs designed to implement each phase.

The plan might incorporate (1) understanding, support and participation of all levels of management, including the place in the organization of the marketing function; (2) a provision that would help the company to determine its customers' present and future wants and needs; (3) a facility to convert these wants and needs into specific products and services; (4) a tool through which the company can actively promote and sell its products and services, and (5) an arrangement through which the company could gain complete understanding and participation by all employes.

A Large Order

This is a large order and to enable us to effectively work with it, I suggest we break it down into manageable parts and attempt to determine at least some of the places where we might look for assistance that is needed in carrying out such a program.

The initial phase — gaining understanding, support and participation from top management—has been approached in a number of different ways. The United States Independent Telephone Association has recognized this need and it has arranged for a very comprehensive program —— a "workshop"——to be given by the faculty of Michigan State University. This, I believe, is an excellent opportunity for company executives to gain a good understanding of marketing and its application to the telephone business. While this is the first of such workshops that the association has sponsored, I am confident that similar sessions will be arranged for in the future if there is sufficient interest to warrant continuation.

It would be difficult to visualize a better source, as this entire program is designed specifically to acquaint telephone management with the meaning and application of marketing principles in the operation of a telephone company. Information concerning this program is available through the USITA association headquarters.

State Associations Active

Such companies have arranged to have a series of seminars or workshops conducted for their management people, and have had the programs conducted by members of the faculty of leading colleges and universities. This approach has proved to be very effective.

In still other instances, state telephone associations have made arrangements with educational institutions in their areas to conduct a series of workshops dealing with marketing orientation and extended an invitation to all telephone operating companies. The Wisconsin State Telephone Association recently conducted a series of such meetings. I understand that this was quite successful. Their experience might serve as a pattern for other state associations to offer similar services to the companies in their areas.

Many colleges and universities throughout the country offer marketing orientation workshops. They would welcome your inquiries. While such a program might not be directed specifically to marketing in the telephone business, the basic principles would be covered in sufficient detail to enable you to interpret and apply these to the operation of your company. Another possibility for obtaining this basic marketing training is in the workshops sponsored by the Industrial Conference Board, the American Management Association and similar types of organizations. Such meetings are conducted throughout the year in different areas of the country and, generally speaking, are quite adequate in this area of basic indoctrination into marketing.

New Approaches Needed

An introduction of marketing through one of these "formal" approaches may not be absolutely essential to the introduction of a marketing effort in your company. However, this type of exposure has proven to be tremendously beneficial to the companies that have used it. The acceptance of the marketing approach to conducting your business will necessitate new approaches, some dramatic departures from tradition, and the better understanding that the top executive has of marketing and the benefits that it offers, the more effective he can be in developing and directing the kind of program that will be most effective for his company. Equally important is the leadership that he can give, and this executive support *is* essential to effect the necessary changes that will be introduced with the acceptance of the marketing philosophy.

The approach to gaining this basic understanding of marketing, its interpretation and application to our industry, are available in a number of places; however, we are again faced with the simple fact that it will not just come about, but rather it will require specific action on the part of someone. The company's management must take the initiative to investigate the possibilities of gaining this philosophy. Once this basic decision is made, the problem of selecting the proper avenue through which to gain this knowledge will be relatively simple.

Active Sales Effort

The second part of our total marketing program might be the introduction of an active and effective sales effort. To decide what we need in this phase, it might be helpful if we could take an objective look at the present situation as related to aggressive selling of our products and services. Quite a few of us have, and have had for some time, a sales effort. However, in light of competition and our responsibility to our customers, is our present sales effort adequate?

Ours is the responsibility to provide all of our customers with complete, modern communications. Do you have someone in your company who is adequately trained and sufficiently familiar with all of your products and services, who possesses some kind of formal sales training, and who has been given the responsibility to see to it that your customers are contacted and acquainted with all of the products and services that you have to offer, and through an adequate explanation of their functions can place the customer in a position to visualize the benefit that he can derive from them? Has someone been given the time to plan and supervise this area of your service? All too often the answer to this question is somewhat nebulous and many of us are guilty of a serious service deficiency, not only to our customers, but to our employes and our owners, by failing to cover our markets with well-trained, well-equipped, qualified sales personnel.

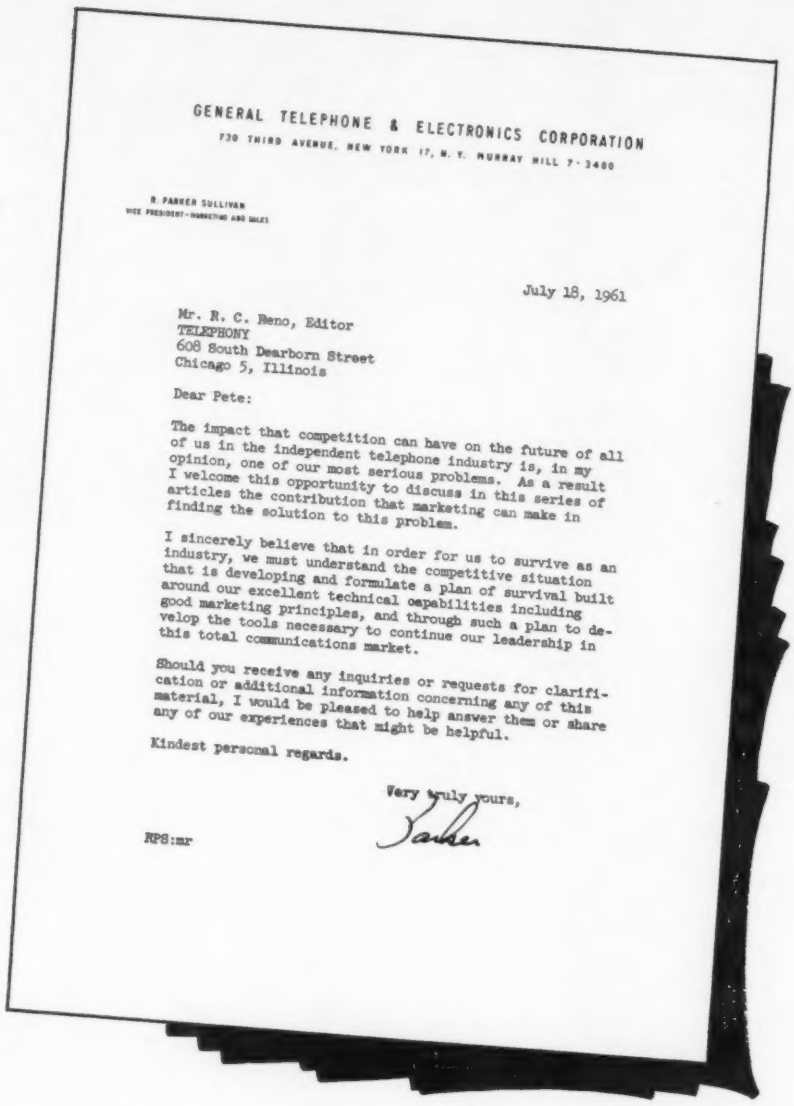
Complete Service Goal

The important place communications has assumed in our business, social and economic lives places a very serious responsibility on us in the telephone industry to provide good, complete, modern communications to all of our customers in the territories we serve. Should not a definition of "good service" include display, demonstration and exposition of all of our products and services to all of our customers, and also include some customer feed-back that will make it possible for us to provide future products and services consistent with his wants and needs?

Good, effective selling by qualified, properly-trained company personnel is, I believe, an integral part of good, modern communications service. A well-planned sales effort provides the customer with better service, it effectively combats competition, it protects our investment and, through it, we realize a direct contribution to profit. It adds security to employes, it helps the company's financial stability and aids directly in realizing future growth potential. These are some of the reasons why a carefully planned sales effort is of such importance to our customers, our employes and the owners of our business. Because of the importance of this function in the different areas of management today, I believe it is entitled to top management understanding, direction and support.

Associations Can Help

To get this portion of General Telephone's long-range marketing program started, we used the services of a firm that specializes in sales training and sales management training and our results are such that I would not hesitate to recommend very strongly this approach wherever it might be possible.



GENERAL TELEPHONE & ELECTRONICS CORPORATION
730 THIRD AVENUE, NEW YORK 17, N. Y. MURRAY HILL 7-3400

R. PARKER SULLIVAN
VICE PRESIDENT - MARKETING AND SALES

July 18, 1961

Mr. R. C. Reno, Editor
TELEPHONY
608 South Dearborn Street
Chicago 5, Illinois

Dear Pete:

The impact that competition can have on the future of all of us in the independent telephone industry is, in my opinion, one of our most serious problems. As a result I welcome this opportunity to discuss in this series of articles the contribution that marketing can make in finding the solution to this problem.

I sincerely believe that in order for us to survive as an industry, we must understand the competitive situation that is developing and formulate a plan of survival built around our excellent technical capabilities including good marketing principles, and through such a plan to develop the tools necessary to continue our leadership in this total communications market.

Should you receive any inquiries or requests for clarification or additional information concerning any of this material, I would be pleased to help answer them or share any of our experiences that might be helpful.

Kindest personal regards.

Very truly yours,

RPS:mr

I fully realize that it would not be practical for some companies to arrange for such training on an individual company basis. Here, again, the solution might well be found by working directly with your state association or through the facilities of the USITA. Either one of these organizations could arrange to have such training available; the only thing that appears to be delaying the development of such an arrangement at this time is the absence of an expressed requirement on the part of a reasonable number of operating telephone companies.

If you are desirous of putting your market coverage, or your selling effort, on a sound, well-planned, productive basis, why not make inquiry of your state's association, or the USITA Marketing Committee and have them investigate the possibilities for you? There are many companies that offer this kind of sales training service, and with direction they can develop a specific program to fill any requirements. Here, again, we find ourselves confronted with the haunting fact that nothing happens until somebody does something. An inquiry on your part to any company that has been successful in the development of such a sales program will, I am sure, be welcomed and assistance will be enthusiastically given.

One Man As Coordinator

A carefully planned sales effort by qualified personnel has tremendous benefits to offer. It places you in a position to equip *all* of your employes to recognize a possible need or desire for additional communications service, how to effectively display, explain and

(Continued on page 55)

WHY LINEMEN RELY ON KLEIN CLIMBERS

There is no piece of equipment more important to a lineman's safety than his climber. Klein pioneered in the development of the climber back when the first wires were strung, and today Klein climbers are preferred because of their safety design, built-in comfort and wide range of styles to suit every preference.

Whether it is a replaceable gaff, adjustable climber or fixed length climber . . . with riveted ankle loop or triangular ring . . . you will find it listed in the Klein Catalog. For convenience, all adjustable climbers may be obtained complete with straps and pads.

Klein adjustable climbers may be had with replaceable gaff—matched pairs, right and left.
1958-AR with riveted ankle loop.
C-1958-AR as above, complete with straps and pads.
1959-AR with triangular ankle ring.
C-1959-AR as above, complete with straps and pads.

Adjustable "Pole Master" climbers. Matched pairs, right and left. Fixed gaff.
1945-A with triangular ring at ankle.
C-1945-A complete with straps and pads.
1957-A with riveted ankle loop.
C-1957-A complete with straps and pads.

The famous Klein adjustable climber accepted as standard by many utility companies. Interchangeable right and left.
1901-MA with riveted ankle loop.
C-1901-MA complete with straps and pads.
1956-A with triangular ring at ankle.
C-1956-A complete with straps and pads.

WRITE FOR:

- Bulletin 458, showing manufacturing and testing details.
- Bulletin 154, Proper Sharpening of Climbers.

Fixed length and other patterns of climbers available. See the Klein Catalog.

ASK YOUR SUPPLIER

Foreign Distributor: International Standard Electric Corp., New York

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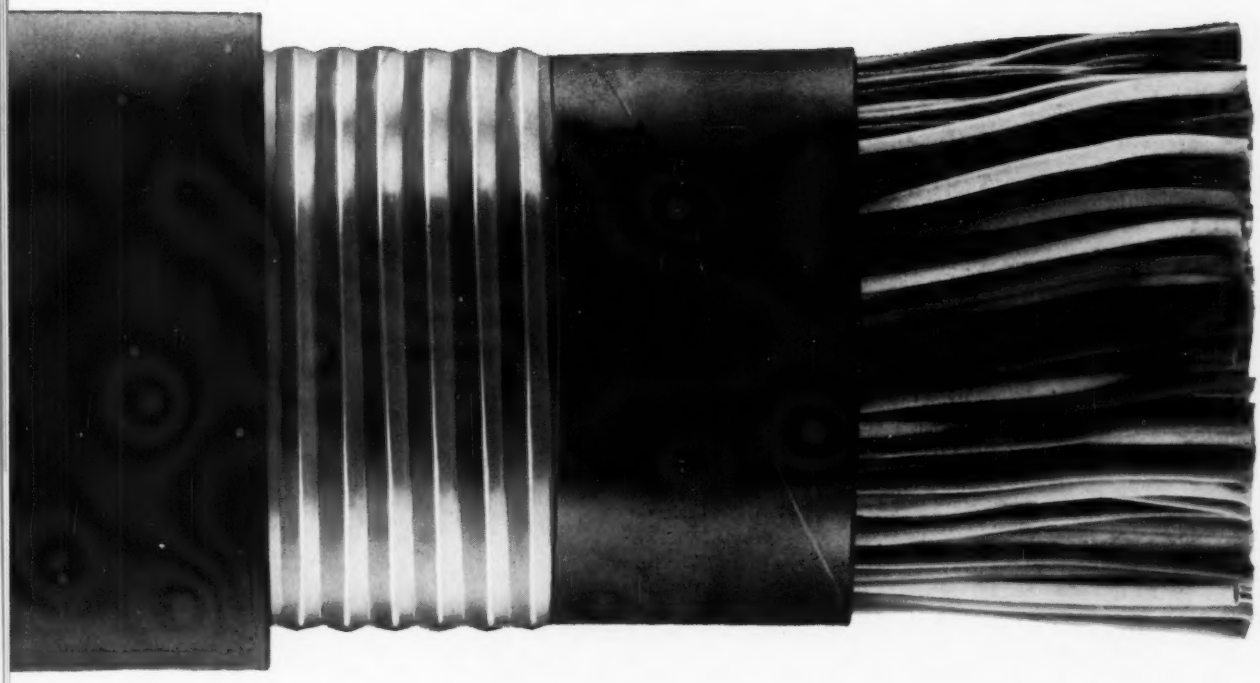
INCORPORATED
7200 McCORMICK ROAD, CHICAGO 45, ILL.

1. ANACONDA QUALITY—Anaconda Alpeth is soundly engineered to provide practical economies based on Anaconda's intimate knowledge of the requirements of the Independent Telephone Industry. • Alpeth polyethylene-insulated cable is precision fabricated. The finest virgin pre-mixed polyethylene is used to assure excellent transmission characteristics, reliability and long life. Standard Alpeth telephone cable is available in sizes 19 to 26 AWG. • The low-resistance aluminum shield is corrugated on all sizes for cable flexibility. The lightweight sheath offers high dielectric strength and corrosion protection. Anaconda Alpeth is manufactured under license from Western Electric.

2. ANACONDA SERVICE—Anaconda's confidence in the Independent Telephone Industry is manifested by a unique combination of manufacturing competence, engineering and research experience, and technical assistance to better serve all segments of the industry. For example: ***Application-Engineered Cable*** offers the electrical requirements needed for actual use. Over-engineering costs money—under-engineering costs more! Anaconda offers the perfect balance: sound engineering based on practical economies. ***Rigid Specifications.*** Anaconda has developed these specifications to set up precise electrical and physical requirements for every type of cable. These specs cover the following cable types: PL, STAL, ALP, CUP, PCP, PCPG, composites, quads, and figure-8 self-supporting aerial cable and wire constructions. ***Coordinated Engineering Activities.*** Anaconda maintains a special staff of communications engineers. They draw on the entire company's advanced research and development facilities in their work. ***Field Specialists.*** Specially trained in communications, these Anaconda field specialists offer their assistance in helping solve customer problems. ***Research and Development***—covering both wire and cable and new materials—is constantly under way at Anaconda to serve the dynamic Independent Telephone Industry. ***Strategically located Shipping Points*** across the country are completely stocked for immediate service on your orders.



The experience and the services of Anaconda are always at the disposal of the Independent Telephone Industry. For technical assistance on any problems, or specifications on any Anaconda products, call your local man from Anaconda or contact Anaconda Wire and Cable Company, 25 Broadway, New York 4, New York, Department EFL-2-T.

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THE INDEPENDENT MANUFACTURER FOR

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THE INDEPENDENT TELEPHONE INDUSTRY

MIND YOUR OWN BUSINESS

A personal file of stimulating ideas; little known facts and daily problem solvers

By Ted Pollock

FIVE TESTED WAYS TO SOLVE A PROBLEM. Where do the answers to problems come from? Every conceivable source. They come from experience, experiment, accidents, daydreams and hard work. You never can tell where or when you'll find them. But there are ways to coax them into existence. Next time you're looking for a solution to a problem, try these approaches:

• *Use your imagination.* Fresh ideas have two major enemies: Logic and common sense. Most of the world's great inventions were fathered by men with the ability to conduct their minds on free-wheeling adventures into the non-existent, the unconventional, the absurd. Try it yourself on a problem you currently face. How might a child solve it? How would your wife tackle it? Would more of something help? Less? How about using something else? Can you solve this in some combination? With what? With whom? Don't be afraid of getting wrong answers. You only need one correct one.

• *Try the obvious.* A truck approached an underpass that was just one inch too low for it. Helpless, the driver pulled over to the side of the road. Presently, a little boy came by. "Truck too high?" the boy asked. "Yeah," said the driver. "Know what I'd do?" "What?" "I'd let some air out of the tires."

All too often, the solution to a problem is right under our noses, hence invisible. Answers that come immediately are not necessarily bad. Some obvious roads to solutions: Find out how others have handled the problem—do research at the library, in trade or professional journals, by writing to an appropriate governmental agency, contact an expert.

• *Get it down on paper.* Your pencil can be a worthy ally, too. Write out the problem as simply as you can. Study it. Jot down all the alternatives that occur to you. If possible, draw pictures. Doodle. The mere act of *playing* with a problem frequently yields the solution.

• *Read.* Nothing will stimulate your "think muscle" like constant exposure to new ideas. Read books on history, economics, psychology, biography, science, travel and your own special interest. Study your daily newspaper, including the little out-of-the-way items. Get the magazine habit. One paragraph, one sentence, even one word may suggest the solution.

• *Brainstorm with others.* Because ideas tend to generate more ideas, a noteworthy method of finding solutions is to talk a problem over with others: Friends, neighbors, colleagues, relatives—even children. Encourage them to give free rein to their imaginations and share their insights and inspirations, no matter how outlandish they may seem. Something that A says may trigger B who in turn may trigger C, and so on. Many ingenious ideas have been born through this kind of "free association."

WHAT'S YOUR "CLARITY QUOTIENT"? Are your letters, reports and memos as clear and easy to read as you think they are? Here is a simple three-step formula devised by language experts for checking readability:

(1) Count the words on an average page. Divide by the number of sentences to get the average sentence length.

(2) Count the words of three or more syllables per 100 words.

How to "Recharge Your Batteries"

The best of us occasionally hits a slump. We dawdle. We daydream. We work on one cylinder. Frequently, the answer is simple: *Get a fresh start.* How? Some ideas:

(1) A steaming cup of coffee at 11 a.m. or 4 p.m. can clear your mind for action, pep up your body. Dream a little while you sip. It's the next best thing to 40 winks. If coffee's not your cup of tea, try tea—or your favorite soft drink.

(2) Gaze out a window for a few minutes. Good for your eyes, a tonic for your brain.

(3) Take a few deep breaths and stretch. Sometimes we get drowsy simply because our bodies are oxygen-starved (a yawn is nature's way of forcing more air into us). Fill those lungs with fresh air, loosen muscles with a good stretch and snap back.

(4) Eat a candy bar. Sugar is an ace pepper-upper. Of course, if you're fighting a personal battle of the bulge, this may not be for you. But now and then, for a change of pace, munch.

ACHIEVERFONE

compare cost, design and installation time

AChieverfone combines low cost, reliability, advanced design and fast installation, giving you and your customers the most outstanding mobile radiotelephone on the market.

Start with cost. Instead of three or more units, AChieverfone has only two units: the control head and the R-T unit. This means AChieverfone costs less than other systems.

Next, take design. AChieverfone is as modern and attractive as today's newest home telephones making MTS more appealing to your subscribers.

Finally, consider installation time. AChieverfone can be installed in just two hours. Only eight screws are required to mount the two units. The interconnecting cabling is plugged into these two units, thus eliminating tedious wiring in the vehicle.

These facts make AChieverfone the best common carrier MTS system you can buy. For more information write or call AC today.

SPECIFICATIONS—FCC Type Accepted

Transmitter: 144-174 Mc, 4-Channel
RF output: 22.5 watts into 52 ohm load

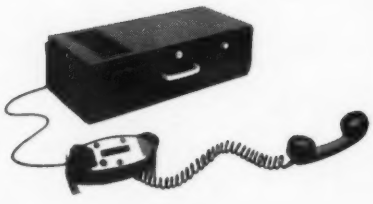
Receiver: 144-174 Mc, 4-Channel
Wide Band (60kc) or Narrow Band (30kc) models available (Bands quickly converted to Narrow or Wide by substituting IF filter)

Frequency Stability: within 0.0005%

Selective Signaling: 51,000 five-digit (compatible, 2-tone sequential) codes available

Size: Receiver-Transmitter, 21⅛" x 8⅜" x 6¼"

Weight: 37.25 pounds, including receiver-transmitter, control head and cable



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(3) Add the two figures and multiply by 0.4.

The answer is your Clarity Quotient. According to extensive tests, a Clarity Quotient over 12 is difficult reading. Above 17, a written communication requires the reading skill of a college graduate. Go much higher than that and your reader is apt either to misunderstand you or give up on your message.

Check *your* next piece of writing for clarity. Don't let a good idea get lost in a forest of gobbledygook.

P. S. The above has a Clarity Quotient of about 9.

HOW JOHN D. ROCKEFELLER CONTROLLED HIS TEMPER. A top executive of the Standard Oil Co. once made an error in judgment that cost his firm more than 2 million dollars. Understandably, colleagues of John D. Rockefeller decided to avoid their chief on the day he heard the news, lest he vent his wrath on them.

The exception was Edward T. Bedford, a Rockefeller partner. He entered Mr. Rockefeller's office prepared to listen to a long harangue against the offending executive, only to find the head of the Standard Oil empire busily writing at his desk.

After some minutes in which the only sound was the scratching of his pen, John D. Rockefeller looked up at his visitor.

"Oh, it's you, Bedford," he said calmly. "I suppose you've heard about our losses?"

Bedford nodded.

"I've been thinking it over," Rockefeller said, "and before I ask the man in to discuss the matter, I've been making some notes."

He handed the sheet of paper on which he had been writing to his partner. Bedford reported it this way:

"Across the top of the page was written, 'Points in favor of Mr. -----.' There followed a long list of the gentleman's virtues, including a brief description of how he had helped the firm make the *right* decision on three separate occasions that had earned many times the cost of his recent error.

"I never forgot that lesson. In later years, whenever I was tempted to rip into anyone, I forced myself first to sit down and thoughtfully compile as long a list of his good points as I possibly could. Invariably, by the time I finished my inventory, I would see the matter in its true perspective and keep my temper under control. There is no telling how many times this habit has prevented me from committing one of the costliest mistakes any executive can make—losing his temper.

"I commend it to anyone who must deal with people."

Poker Odds

If Friday night invariably means poker to you—or you only occasionally sit in on a game, you may be interested to know what your chances are of being dealt any given hand. Mathematics says:

Hand	Odds Against You
Royal flush	649,740 to 1
Straight flush	72,193 to 1
Four of a kind	4,165 to 1
Full house	694 to 1
Flush	505 to 1
Straight	256 to 1
Three of a kind	48 to 1
Two pair	21 to 1
One pair	2½ to 1
Other	2 to 1

Good luck!

HAVE YOU CHECKED ON YOUR SOCIAL SECURITY CREDIT LATELY? There are several good reasons why you should. First, a knowledge of your earnings credit is vital to the intelligent planning of your financial future. Second, you'll get a lift out of knowing how much you have to your credit. Third, your wife and children ought to be acquainted with this important source of potential income. Here's what you do:

Write to the Social Security Administration office nearest you (look in your telephone book under "United States Government—Health, Educ. & Welfare, Dept. of") and ask for post card Form OAR-7004. When the post card arrives, preaddressed to the Social Security Administration at Baltimore, fill in your social security number, date of birth, name and address. Stamp the card and mail it. By return mail you will receive a statement of earnings credited to your account.

FINDING TIME TO READ MORE. "I haven't the time to read." Sound familiar? If it does, you're probably not taking full advantage of all the reading time at your disposal. Even the busiest day is full of spare minutes you can use to catch up on important books, articles and reports, providing you keep them handy. A few suggestions:

- *Travel time.* If you're only half an hour from your office, plant or place of business and don't take your car, you spend 250 hours a year getting to and returning from work. Add the time spent in cabs and on business trips and you have the equivalent of several solid weeks for catching up on reading matter.
- *Waiting time.* You miss your train or bus . . . the man you've come to see is tied up . . . an appointment is over sooner than you expected . . . your wife is late. It all adds up to usable, readable time.
- *Eating-alone time.* On those days when you eat alone, you can have extra dessert in the form of spare minutes.
- *TV-watching time.* If you cut out just one half-hour program a night, you'll create *the equivalent of seven days and eight nights* of extra time every year. That's enough to finish half a dozen books . . . 20 magazines . . . 50 newspapers.
- *Can't sleep time.* Keep some reading matter on your night table. If you're unable to sleep, you'll have something worthwhile to read right at hand.

THINGS YOU SHOULD HAVE TWO OF. A modest investment in duplicates of items needed frequently in every home can save you time *and* make your life easier and more pleasant. For example:

Umbrellas. An extra one for the office will save you waiting time, cut down on cleaning and pressing costs, save you endless annoyance.

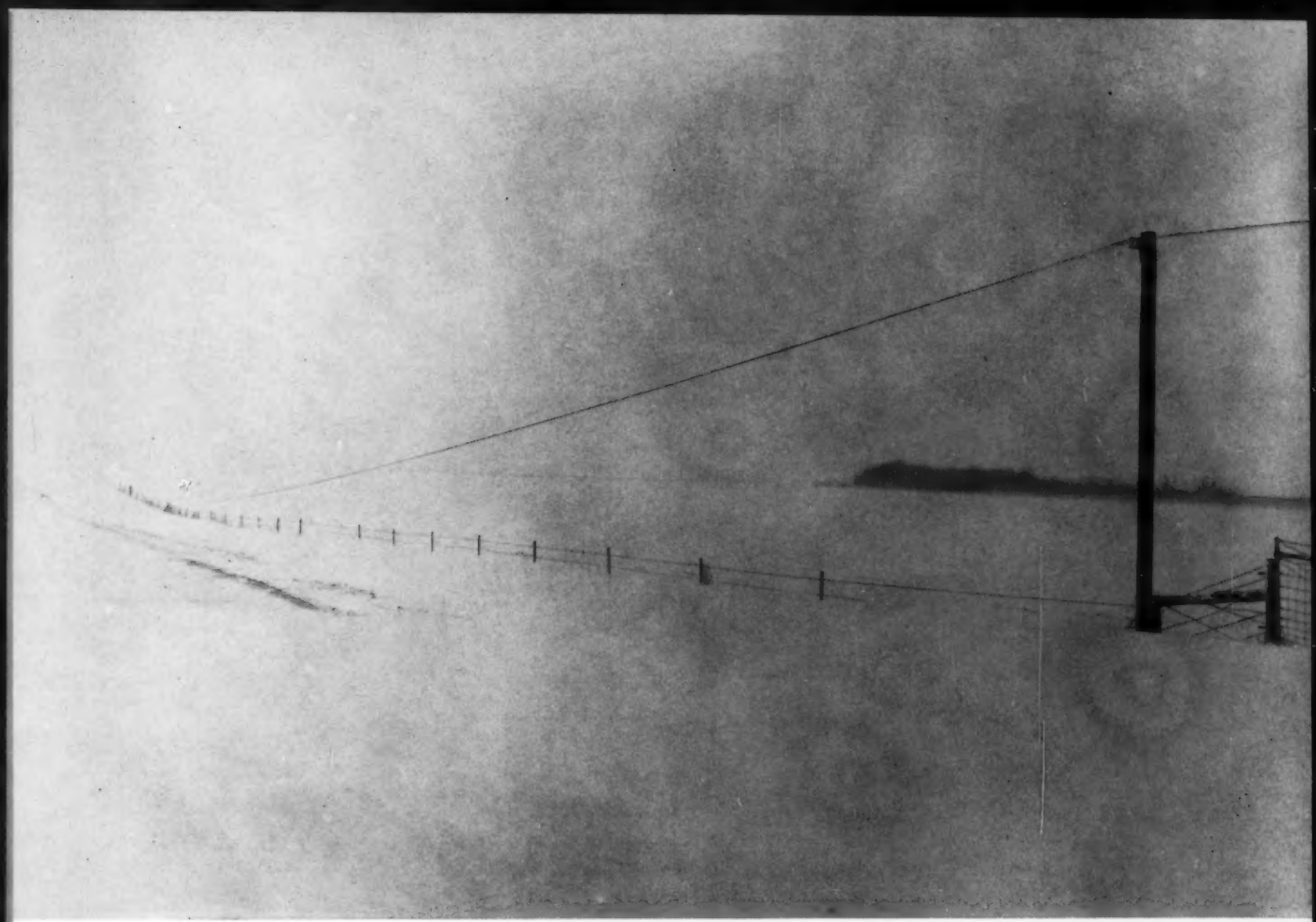
Keys. Few things are more frustrating than a missing car, home or office key. Extras cost very little, can be worth their weight in gold.

Shoelaces. It's a well known fact that laces only break before important appointments, when you're already late for a meeting, etc. So stock up on them.

Razor blades. It's your guarantee against nicks, chafing and scratches. Get the habit of asking for two packages when you shop.

Miscellaneous. Don't overlook pencils, pens, pocket combs, cuff links, stamps, scissors, tacks, wrapping paper, matches, lighter fluid.

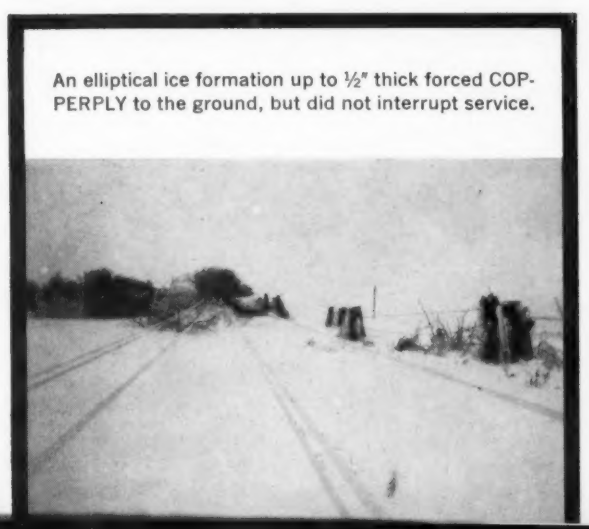
TAKE YOUR MEDICINE LIKE A MAN! Have to take unpleasant-tasting medicine? Hold an ice cube in your mouth for a little while to desensitize your taste buds. Remove the ice and—down the hatch! You'll barely taste it.



"The lines are down... but I hear you perfectly"

These words came from a Tyler, Minnesota farm wife during a severe ice storm last winter. She could see that the lines were down. But there was no interruption in service.

Throughout the entire countryside around Tyler, the Tyler Telephone Company had installed .080-25 COPPERPLY conductor wire in new long-span lengths (up to 1900 feet between poles) to test a completely new concept in aerial insulated wire plant. By stringing insulated COPPERPLY over such long spans, it is possible for the wire to rest on the ground, when loaded with ice, before it reaches 55% of ultimate strength. When the ice load melts, COPPERPLY returns to the normal unloaded height above the ground.



An elliptical ice formation up to ½" thick forced COPPERPLY to the ground, but did not interrupt service.

At Tyler, National-Standard COPPERPLY remained under three feet of snow in some places for as long as three months, with no interruption in line service. In addition, long-span systems cut installation costs, eliminated the problem of mid-span hits, reduced tree trimming and maintenance costs. For information on the complete line of COPPERPLY conductors, write National-Standard Company, Niles, Michigan. C-61-2

NS

NATIONAL-STANDARD COMPANY

Niles, Michigan

The Plant Man's NOTEBOOK

By RAY BLAIN, Technical Editorial Director

WE ASKED OUR good friend, Warner T. Smith, chief engineer of Superior Cable Corp., for his opinion of the cause of the trouble being experienced on RDW by John W. Hines, of Earlsboro, Okla. The trouble was mentioned on this page in TELEPHONY's issue of June 17, and Warner has been kind enough to furnish the following information:

"The messenger of RDC is a poor conductor for lightning. Therefore, when induced lightning currents flow along it to reach ground, the voltage build-up is high. The insulation on the support wire is 25 mils of polyethylene. It has been found that zinc particles on the galvanized wire make for some imperfections in the insulation over the support wire.

"Accordingly, we can't be sure that the support wire insulation is good for high voltages throughout its length, so break-downs involving the conductors wrapped around the support wire can be expected. Once this occurs, the circuit is in trouble. In this case, grounding the support wire would add to the probability of trouble unless the grounds were very frequent and of very low resistance.

"In installing the RDC, it has been found that damage to the conductor insulation is frequent and hard to detect. Lightning finds the defects in operation and causes shorts and opens in the pairs.

"In joint use, the power conductors in the upper position act as shield wires and protect the RDC in the lower position. The same effect could be achieved by over-building RDC with telephone conductors.

"With the high-induced voltages on the support wire and conductors, protector breakdowns should occur frequently. The magnitude of these currents could well vaporize conductors and cause opens. Full count protection will minimize breakdowns between conductors and support wires, and certainly should be used in areas with intense lightning incidence.

"The experience with pre-insulated sleeves indicates that the insulation level on the sleeves is less than on the conductors. This means that they are the weak link in the chain and perform as protectors for the rest of the circuit. I doubt that relative insulation levels were given much attention in the design of the sleeves.

"After reviewing Mr. Hines' trouble, I couldn't help but feel that there is an answer to most of the problems in our new IM construction for Rural Distribution Wire; i.e., the support wire is separated from the conductors by a heavy web of polyethylene so there is little likelihood of breakdowns involving the grounded support wire. The support wire is in the upper position so it can be more effective as a shield.

"The conductors are insulated with high density polyethylene and protected further by a heavy polyethylene jacket. Damage to conductor insulation during installation should be eliminated. If it does occur, the damage is easily visible since the outer jacket will be damaged.

"It is suggested that Mr. Hines try some IM-RDW under similar conditions as the RDC and compare results. We are sure he will find a marked difference in maintenance costs and trouble reports. The intensive maintenance reported in his letter raises a question as to the true economics of the facility. It is probable that savings in first costs are more than offset by increased annual costs for maintenance."

Regardless of whether or not we agree with Warner, we must admit that he gives us some ideas for thought. It must also be remembered that when RDC was brought out just after the end of the late war, it was intended only as a temporary expedient. It was to be used to provide service quickly and was not intended to have a long life. Perhaps, we have expected too much from it. In this connection, several cable companies have now developed better RDC, and we suggest that you give them a try, in the event you are experiencing difficulty in maintaining the older types.

•

According to the 1960 annual report of the Pacific Telephone & Telegraph Co., residence as well as business customers gave a warm welcome to the new Princess telephone. By the year's end, 160,000 of these modern, small instruments adorned their customers' homes and offices.

Color telephones also continued to prove popular as subscribers added 443,000 of these instruments during the year.

•

Announcement has been made by John F. Rider, Publisher, Inc., that they have granted the Japanese translation rights to their pictured text course, "Basics of Digital Computers," to the Kinokunija Book Store Co., Ltd., of Tokyo, Japan.

This will be the first Rider title to be published in Japanese. A number of other Rider titles are available in German, Italian, Spanish, Portuguese, and French.

•

In a recent letter, J. L. McGhee of the West Florida Telephone Co., Marianna, refers to our article on a device for isolating noise from divided ringing rural lines, and comments as follows on his experience:

"We are presently using rare gas relays on our divided ringing rural lines, and have for about 20 years. But in the last three years, the local power company has increased its primary voltage and changed from a delta to wye system. We have not been able to use the 60-cycle ringing frequency because of induced voltage. Even though we used three gas relays in series, our noise problem has been terrific.

"Recently, we installed a rural subscriber carrier on one line in order to gain more channels and learned that this carrier channel was entirely free of noise. This may be an expensive means of eliminating power induction noise, but it is certainly effective."

•

The writer recently enjoyed being in attendance at the cut-over of the new U. S. Army Signal Corps 6000-line dial telephone system at Fort Lee, Va. This system serves the Quartermaster Training Command and replaces a manual system.

"Cross Talk"

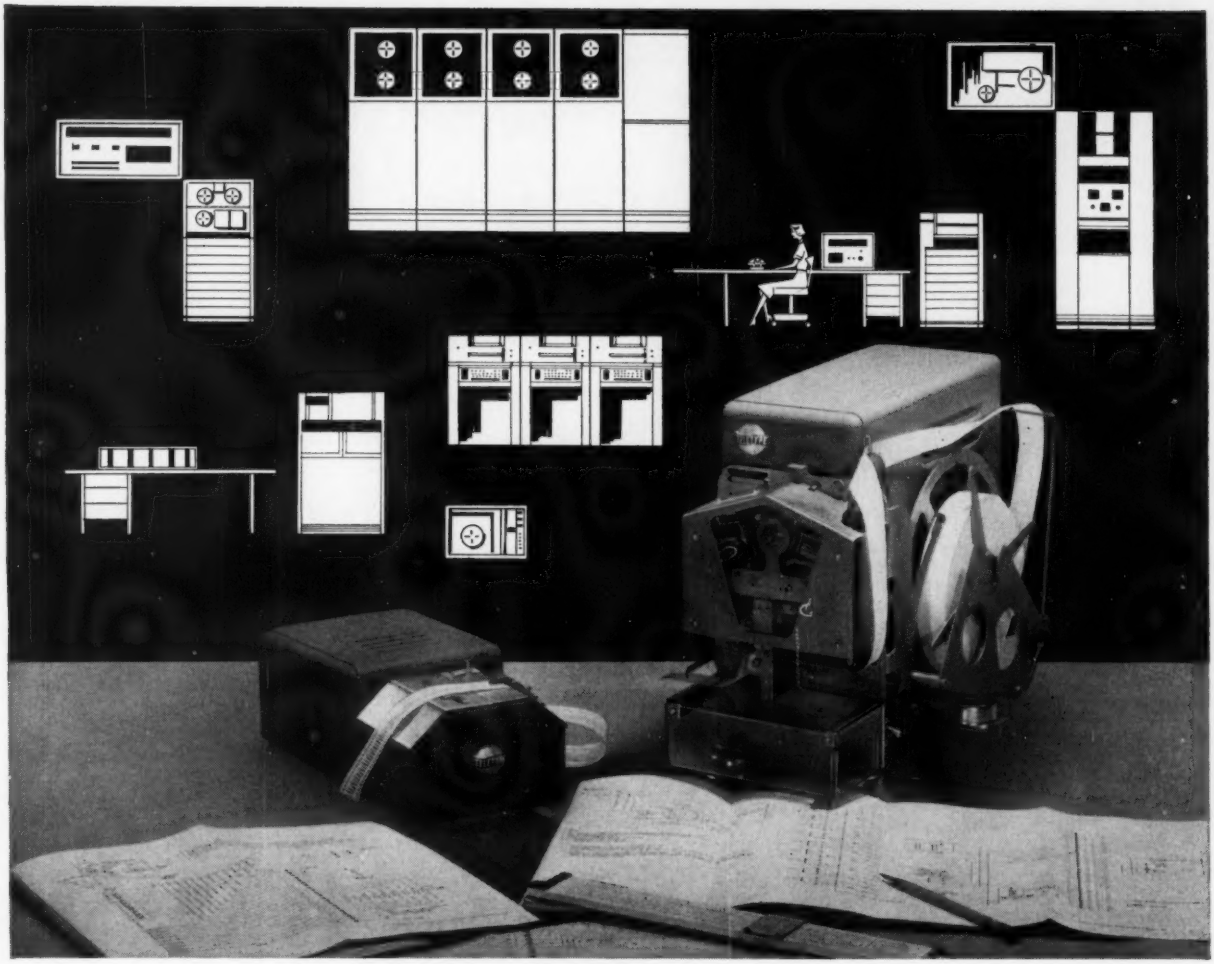
An American is described as a person who isn't afraid to bawl out the President, but is always polite to a policeman.

•

You can always tell luck from ability by its duration.

•

It is reported that a hypochondriac ordered the following inscription for his gravestone: "Now will you believe I am sick?"



New Teletype 1000-speed tape units

Here are two new units that offer the advantages of punched paper tape at 1000 words per minute—and combine traditional Teletype dependability with design simplicity and relatively low cost. Used together, the CX reader (left) and BRPE punch (right) are ideal for tape-to-tape communication of bulk message or statistical traffic via the new Data-Phone service. The reader and punch may also be used individually for communicating data to or from computers, and other devices associated with data processing, telemetering and similar communications functions.

These high-speed units operate on a parallel-wire signal path, in either transistorized or vacuum tube circuits. For serial transmission over conventional voice channels, signals can be converted by external facilities. A pulse generator, adjustable through a full 360 degrees, triggers the external signal storage and provides optimum synchronization of intelligence transfer.

Tape Reader—Will read chadless or fully perforated tape, in 11/16", 7/8" or 1" tape widths. Includes a set of auxiliary timing contacts that operate simultaneously with the sensing pins and assure accurate synchronization with associated transmitting equipment. Dimensions: 5" high, 6" wide, 11" deep. Models available for reading 5, 6, 7, or 8 level codes.

Tape Punch—Produces fully perforated tape. Equipped with "low tape" warning mechanism which can be wired to external alarms. Tape container designed for easy access. Dimensions: 12" high, 8" wide, 16½" deep. Available in two models—one for punching standard 5-level communications code (11/16" tape); the other adjustable for punching 6, 7 or 8 level codes (7/8" or 1" tape).

Teletype Corporation manufactures this equipment for the Bell System and others who require the utmost reliability from their data communications facilities. For free descriptive literature on the CX and BRPE units, write Teletype Corporation, Dept. 65H, 5555 Touhy Avenue, Skokie, Illinois.

TELETYPE®
CORPORATION • SUBSIDIARY OF *Western Electric Company* INC.

Courts and Commissions

Request Lower L.D., Higher Monthly Rates in Cal.

Willard Wade, president, California Interstate Telephone Co., Victorville, has announced the filing, on July 28, of an amendment to the company's 1960 rate application (TELEPHONY, July 16, 1960).

The amendment, filed with the California Public Utilities Commission, seeks permission to lower some long distance rates and to increase some charges for local service.

The company first filed for an increase in rates in March, 1960. Subsequently, the commission held hearings and granted an increase on an interim basis which provided for roughly 50 per cent of the amount requested. This interim increase was granted with the stipulation that the company would conduct certain studies concerning division of long distance revenues with other companies, and submit an amendment to its application when these stipulations had been accomplished.

"We are doing just that," said Mr. Wade. "Under this proposed amendment we are seeking the rates for monthly local service which we originally asked for. We are also requesting that the company be permitted to reduce its long distance rates. All the changes, if granted, will result in a saving to our subscribers of $104,000 annually."

The company president pointed out that the figures used in the estimates were based on the operating figures for the fiscal year ending Mar. 31, 1961.

According to estimates as reported by the company, its California subscribers will save over $335,000 in reduced charges for long distance and leased line services. However, the reduction in annual revenue to the company was estimated at $493,000.

"Broadly speaking," Mr. Wade stated, "reduction in long distance rates will apply to telephone users throughout the state. In showing the annual savings to our subscribers, we must base it on the volume of calls they make. In considering the reduced revenue to the company, we must consider all other telephone users in the state whose calls are handled through our facilities."

A major offset for reduced revenue has been negotiated in the form of a better revenue settlement for long distance calls involving other companies. An additional offset is proposed in the form of an increase in some of the charges for local monthly service.

The company also proposes to reduce its rates for leased lines and increase its rates for directory advertising.

Present and proposed rates for service in the base rate areas follow:

Alpine, Bridgeport, Crowley Lake, Lone Pine*

	Present	*Proposed*
One-party business	$8.45	$12.90
Two-party business	7.05	9.30
Four-party business	5.90	8.00
One-party residence	5.50	5.75
Two-party residence	4.75	5.10
Four-party residence	3.70	4.15

*Proposed rates for Crowley Lake are, one-party business, $14.50; two-party business, $10.50; four-party business, $9.20; one-party residence, $6.60; two-party residence, $5.85; four-party residence, $4.75.

Barstow

One-party business	$10.35	$15.10
Two-party business	8.85	11.00
Four-party business	7.70	9.60

Residence rates remain the same: One-party, $6.90; two-party, $6.10; four-party, $5.00.

Big Bear Lake, Bishop

One-party business	$10.35	$12.90
Two-party business	8.85	9.30
Four-party business	7.70	8.00

Rates for residence service will remain unchanged. These rates are: One-party, $5.75; two-party, $5.10; four-party, $5.00.

Ridgecrest

One-party business	$11.00	$14.50
Two-party business	9.15	10.50
Four-party business	8.05	9.20

Rates for residence service will remain unchanged. These rates are: One-party, $6.60; two-party, $5.85; four-party, $4.75.

Victorville

One-party business	$11.00	$16.45
Two-party business	9.15	11.90
Four-party business	8.05	10.40
One-party residence	7.05	7.50
Two-party residence	6.30	6.65
Four-party residence	5.15	5.40

Some sample decreases in station-to-station long distance day rates as proposed by the company are: Bishop to Los Angeles, reduced from $1.20 to $1.05; Victorville to San Francisco, reduced from $1.45 to $1.30; Lone Pine to Sacramento, reduced from $1.20 to $1.05.

Michigan General Cuts Request After Bell Toll Agreement

During recent hearings on General Telephone Co. of Michigan's rate request, the Michigan Public Service Commission on July 25 announced that General had cut the amount of its request from 4 million dollars to $2,015,280.

The Michigan commission had recommended the 2-million-dollar amount on July 24, after the company reduced its original request to 3.32 million dollars. J. L. Johnson, company controller, told the commission the cut in the company's rate request resulted from a new agreement in toll requirements with the Michigan Bell Telephone Co.

The annual increase now recommended by the commission would give the company a 6.5 per cent return on its investment, according to the commission staff.

Protest SW Bell Ban on Free Testing Ad in Mo. Directory

A television repair company has asked the Missouri Public Service Commission to compel Southwestern Bell Telephone Co. to allow the TV company to include a line on free tube testing in the company's Yellow Pages advertising.

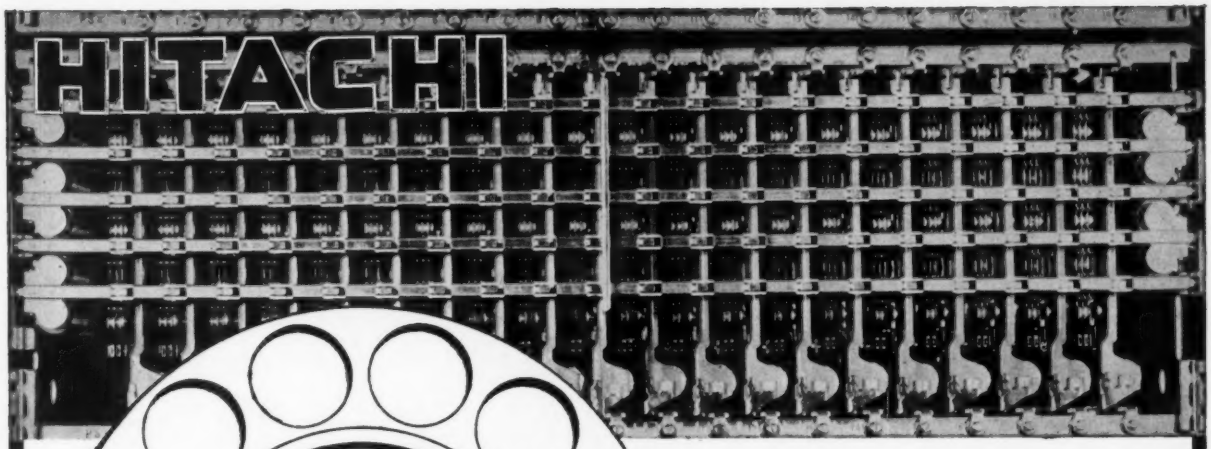
A hearing was held on July 24 on Videon Television Service Co.'s request to allow the wording "free TV tube testing" and "you pay nothing" in its advertisements in the St. Louis classified directory.

Doyle Hyatt of St. Louis, division directory sales manager for Southwestern Bell said that: "If we permit Videon to use it, we have to let every other TV service in St. Louis use it. We can't set ourselves up as an investigative agency."

He said that the company decided to keep all TV repair companies from using that type of advertising as a safety measure.

(Continued on page 36)

HITACHI



For communication systems, call Hitachi

Extensive Hitachi experience with communications systems is reflected in the handsome Type HA-6 telephone set. Its light, compact and sturdy body is tough enough to withstand the shock of being accidentally dropped to the floor. Other outstanding features include high-fidelity transmission and reception, dust-proofed ratchet for ever-smooth dialling action, and clear and commanding bell-tone.

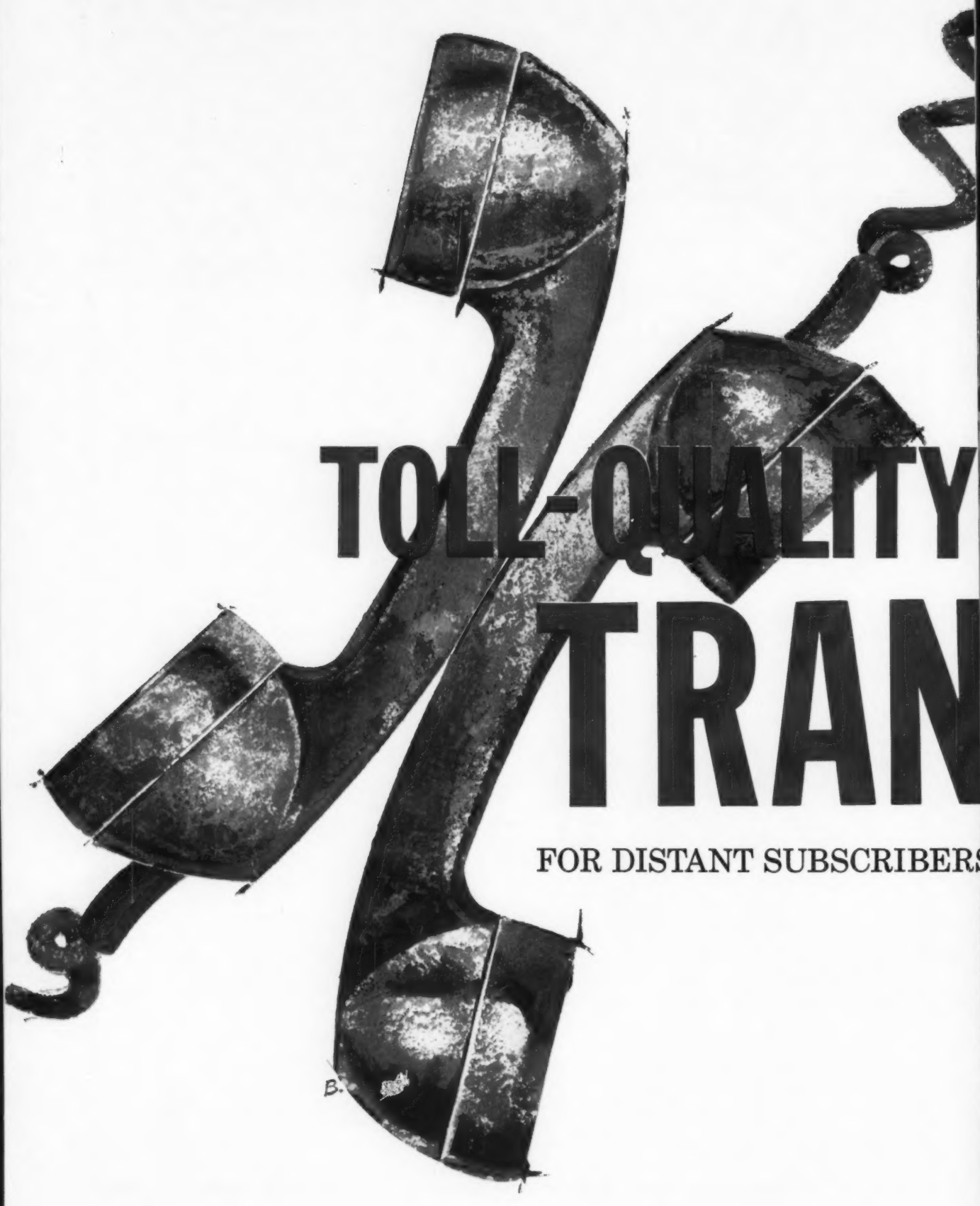
Today's telephone communications authorities are now employing the Crossbar System Automatic Telephone Switchboards in addition to the time-proven "step-by-step" Strowger System. They are finding that the Crossbar System offers many advanced facilities, fewer maintenance problems, minimized failures and longer service life, and that these features are making it ideal for unattended operations. Hitachi has devoted particular attention to the development of the Crossbar System, and consignees continue to report gratifying operating results.

- Telephones and Switchboards
- Carrier-Current Communication Equipment
- Radio and Television Broadcasting Equipment
- Parts for Communication Equipment
- Analog and Digital Computers

Electric Wire and Cable

Hitachi, Ltd.
Tokyo Japan

Cable Address: "HITACHY" TOKYO



TOLL-QUALITY TRAN

FOR DISTANT SUBSCRIBERS

when capital is tied-up, and new service demands exist...

independents start thinking "carrier," in order to get maximum use from existing facilities. And, when you think "carrier," you naturally think "Kellogg"—the leader in carrier design, development and manufacturing. Without a doubt, it's the most complete, and most completely field-tested carrier line in the industry.

ITT Kellogg K-31 and K-32 Carriers offer more exclusive features, yet are lower in cost.

K-31 RURAL SUBSCRIBER CARRIER

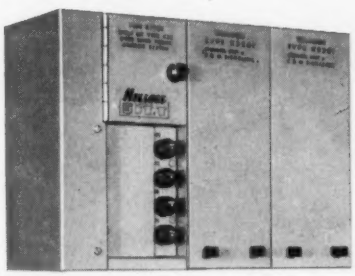
Provides high grade, low cost service between a central office and rural subscribers on single or multi-party lines. Up to 8 channels. Can be utilized to meet future growth needs.

K-32 OPEN WIRE TRUNK CARRIER

Provides low cost EAS or toll service between two central offices. Also up to 8 channels.

And now, system mileage can be *doubled* with one low-cost repeater, *tripled* with two repeaters!

Next time you get caught by sudden new service demands, conserve your capital: find out about carriers, from carrier experts. Call your ITT Kellogg representative or write the ITT Kellogg Regional Office nearest you.



SMISSION

...AT LOWER COST THAN OPEN WIRE

...with CARRIER by

ITT **KELLOGG**

A Division of
International Telephone & Telegraph Corporation
6650 South Cicero Avenue, Chicago 38, Illinois

Transmission Department
2912 Wake Forest Road, Raleigh, N. C.

Regional Offices and Warehouses:
CALIFORNIA: 23 Broderick Road, Burlingame, California, OXford 7-5780.
GEORGIA: 1594 Southland Circle, N.W., Atlanta 18, Ga., SYcamore 4-2441.
INDIANA: 802 Knitters Ave., Fort Wayne, Indiana, Eastbrook 4562.
IOWA: 1111 East River Drive, Davenport, Iowa, 324-0441.
KANSAS: 7th and Sunshine Road, Kansas City 15, Kansas, MAyfair 1-4418.
NEW YORK: 309 Wavel Street, East Syracuse, N. Y., HEmpstead 7-2511.
NEW YORK CITY: 22 Thames Street, New York 6, BOwling Green 9-3800.
TEXAS: 1359 Motor St., Dallas 7, Texas, Riverside 7-5191.

ITT Kellogg products available in Canada
through Standard Telephone & Cables Mfg. Co., Ltd.
9600 St. Lawrence Boulevard, Montreal 12, P.Q. Canada

A spokesman for Videon said the disputed advertising wording had been allowed in the 1960 directory.

Petition for Rate Increase On Cut-Over in Nevada

The Southern Nevada Telephone Co., Las Vegas, it was reported on July 24, has filed a rate raise request for its Boulder City exchange with the Nevada Public Service Commission, rates to be effective with the cut-over to dial telephones scheduled for Jan. 22, 1962.

Present and proposed rates are shown as follows:

	Present	*Proposed*
One-party residence	$3.70	$6.55
Two-party residence	3.10	5.20
Four-party residence	2.50	4.25
One-party business	5.75	14.50
Two-party business	4.75	10.50

Ind. Loans, Finance Asked; Some Finance, Service Okays

The Indiana Public Service Commission has received the following petitions:

On June 12, a request by the United Telephone Co. of Indiana, Inc., Warsaw, to borrow $750,000.

•

On June 14, the request of Indiana Telephone Corp., Seymour, to issue 2

Bell System Uses Data-Phone To Send Medical Data

Instant transmission of medical data by telephone directly from the human body to remote recording instruments anywhere in the country will soon be possible through use of special Data-Phone data sets now being developed by the Bell Telephone System.

Harvey J. McMains, American Telephone & Telegraph administrator of data communications planning revealed that a system for transmitting "live" electrocardiographs is now under development by the Bell Laboratories and will be available to doctors and hospitals some time next year.

The Bell System is also currently conducting tests on the transmission of X-rays by telephone, he said, and is investigating the most efficient and economical means of sending other types of electronic medical data over telephone facilities.

These future services were previewed for the medical profession at the American Medical Association's annual convention in New York City. The New York Telephone Co. conducted "live" electrocardiograph transmission demonstrations with visiting doctors. Electrocardiograph readings were sent by telephone directly from the heart of "patients" to a Honeywell 906c Visicorder which produced graphs instantly.

"This system represents a major advance in medical communications," Mr. McMains said. "It means that consulting specialists anywhere in the United States can receive instant data on heart performance by telephone, even during an actual operation."

In a functional application, a medical attendant telephones the number of the one or more locations to receive the electrocardiograph after attaching electrodes to the patient. Then, by pushing the data button on a compact Data-Phone data set, heart pulsations are transmitted over the telephone to a recorder at the receiving location.

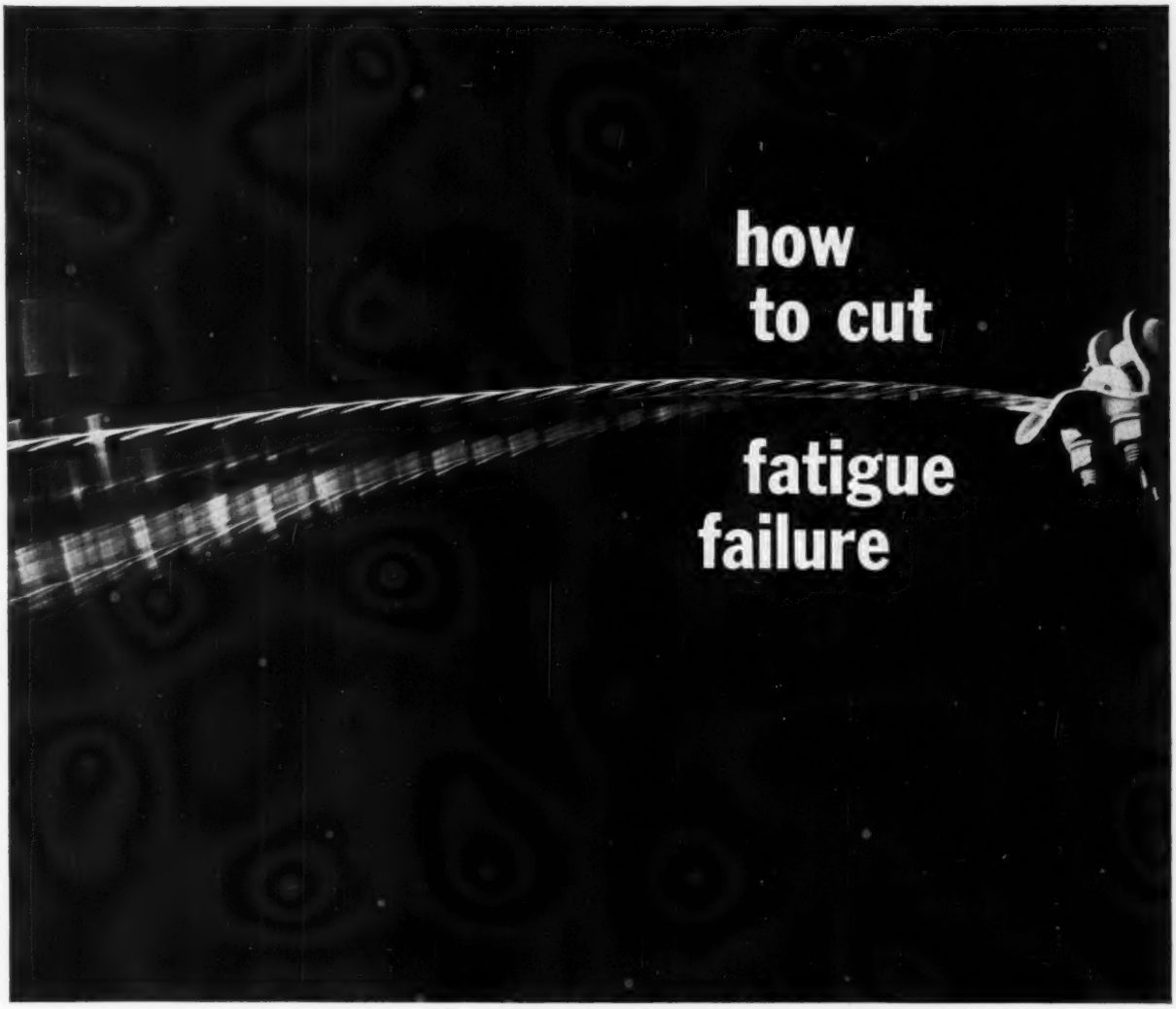
The transmission of data by telephone directly from a human body to a remote recorder will be possible through use of Data-Phone service.

The Bell System is working with a number of equipment manufacturers on the design requirements for compatible recording instruments to function with Data-Phone data sets. In this medical application, a Bell System 600 series data set will be used, he said. The Series 600 data sets permit the sending and receiving of handwriting, charts and diagrams between machines in different locations over telephone facilities.

The AT&T spokesman said the Bell System has been transmitting X-rays over telephone lines for several years on a test basis, through use of Data-Phone service. Trials have been conducted between the Army Air Force base in Rome, N. Y. and Dayton, O. and between Mt. Sinai Hospital in New York and Einstein Memorial Hospital in Philadelphia.

"It is hoped that telephone communications can make increasing contributions to the rapidly growing field of medical electronics in future years," Mr. McMains said. "The Bell System is conducting intensified research and development to expand the usefulness of its services for the medical profession."

A major advancement in medical electronics is being developed by the Bell Telephone System in enabling the instant transmission of "live" electrocardiographs by telephone through the use of its Data-Phone service. Left photo: After connecting electrodes to the arm of a patient, a medical attendant dials the number of the location to receive the graph and pushes the data button on a Bell System Series 600 data set. Right photo: Instantly, graphs are produced in a remote location where a consulting specialist may study the findings with no loss in time.



USE TOUGH STEEL STRAND WITH BETHANIZED COATING

Steel

for Strength
. . . Economy
. . . Versatility

An overhead ground wire vibrates every time the wind blows briskly. And that vibration is destructive. It causes fatigue stresses which ultimately cause weakening and failure.

Bethanized strand provides maximum resistance to fatigue failure. Here's why: the steel wires themselves are selected to provide extra strength and toughness. But that's not all. The smooth, uniform coating of pure electrolytic zinc on each wire provides excellent corrosion-resistance, as well as better fatigue-resisting characteristics than other types of coated wire.

Bethanized strand is also available in four different coating weights. Thus you can get exactly the right corrosion-protection for each individual installation. The nearest Bethlehem sales office will gladly give you full details.

BETHLEHEM STEEL COMPANY, Bethlehem, Pa.
Export Sales: Bethlehem Steel Export Corporation. *Distributor:* Joslyn Mfg. & Supply Co.

BETHLEHEM STEEL

BETHLEHEM STEEL

million dollars' worth of first mortgage sinking fund bonds at 5¾ per cent.

•

On June 28, the request of Mulberry Co-op Telephone Co. to borrow $40,000, and issue mortgage notes to evidence the borrowing.

•

Batesville Telephone Co. on June 16 received authority to issue and sell $450,000 first mortgage bonds, 1961 series, at 5½ per cent.

•

The commission on June 16 also authorized Public Telephone Corp., Greensburg, to issue and sell $450,000 first mortgage sinking fund bonds, of the 1961 series at 5½ per cent.

The commission on July 21 dismissed without prejudice the petition of the Coatesville Telephone Co. to issue and sell 300 shares of its common capital stock.

The Indiana commission also, on June 23 authorized General Telephone Co. of Indiana, Inc. and the Citizens Telephone Co. of Clay County, Inc., Brazil, to eliminate the Clay City-Center Point "free service," and replace it with standard service.

Southern Bell Requests Rate Revisions in South Carolina

The Southern Bell Telephone & Telegraph Co., it was reported on Aug. 7, has filed a rate revision request with the South Carolina Public Service Commission, designed to yield additional annual revenues of $380,000.

The company requested reclassification of exchanges that have grown out of their present rate groups and the reduction, or elimination, of mileage charges for a great majority of suburban and rural subscribers.

A. T. Stephens, district manager in Columbia, noted that Columbia subscribers can call more than 81,000 telephones at present, compared with 41,000 in 1952, when the present rates were established.

In Eastover, for another example, Mr. Stephens said since 1952, the number of telephones has increased from 65 to more than 300.

W. G. Edwards, head of Bell operations in South Carolina, said the proposed changes would "recognize the

(Continued on page 42)

34 Independent Men Attend IBM Accounting Course

Executives of 34 Independent telephone companies gathered in Endicott, N. Y., recently to attend an Executives Concept Course at the IBM Education Center.

The course exposed them to some of the latest developments in automation in the telephone industry and there were many opportunities to discuss their experiences with each other.

The course of instruction covered all phases of mechanized accounting and control in the telephone industry, including demonstrations of industry applications on a number of types of IBM equipment.

Presentations were made by D. Fred Grothe, Eastern Illinois Telephone Co., Rantoul, Ill.; Kenton O. Hart, Oswego County Telephone Co., Fulton, N. Y.; Edward P. Kittinger and Thomas K. McLaughlin, Carolina Telephone & Telegraph Co., Tarboro, N. C., and Donald Pearson, Rochester (N. Y.) Telephone Co., in addition to IBM staff instruction.

John A. Brady, LaFourche Telephone Co., Larose, La., was elected president of the class and presided at the class banquet.

The IBM Corp. trains more than 6,000 executives at this facility each year. Since 1936, the year its executive program began, more than 72,500 executives have been awarded "degrees" from this educational institution.

Shown at IBM's recent Executives Concept Course, covering mechanized accounting and control, and given at Endicott, N. Y., for Independent telephone industry personnel are (Row 1, l. to r.): M. A. Phillips of Belvidere, N. J.; K. O. Hart of Fulton, N. Y.; C. F. Metzgar of Norwich, N. Y.; R. A. Spink Jr. of Harrisburg, Pa.; N. A. Welter of Elyria, O.; C. W. Carlson of Winter Park, Fla.; E. P. Kittinger and T. K. McLaughlin, both of Tarboro, N. C., and D. F. Grothe of Rantoul, Ill.

Row 2: A. M. Nelson of Chillicothe, O.; J. R. Yeager and L. W. Schreckengast, both of Lima, O.; C. B. Fishel of Harrisburg, Pa.; Bill Fitts of Winchester, Ind.; B. F. Smith of Wisconsin Rapids, Wis.; S. S. Fann of Live Oak, Fla.; A. W. Wellenkotter of Tomah, Wis., and R. M. Leffel of Lima, O.

Row 3: J. M. Plafcan and A. I. Weisskopf, both of Philadelphia, Pa.; C. A. Henry of Bellevue, O.; W. B. Hardy of Chardon, O.; C. C. Leiby of Ocala, Fla.; P. A. Timberlake of Corydon, Ind.; V. R. Chesbro of Ottawa, Kan.; M. M. Buck of Columbia, Mo.; F. D. Vetter Sr. of Manassas, Va.; G. A. Corum of Auburn, Ky., and E. H. Marrow of Tarboro, N. C.

Row 4: T. D. Robertson, IBM course manager; C. F. Eichler of New London, Ia.; J. M. Rutland of Brownwood, Tex.; J. A. Aigler of Bellevue, O.; R. E. Lawrence Jr. of Tarboro, N. C.; V. E. Hix of Scottsbluff, Neb.; R. A. Hall of Norwich, N. Y.; T. L. Selmon of Bucklin, Mo.; R. D. Simpson of Russellville, Ark.; J. T. Ford of Little Rock, Ark.; J. A. Brady Sr. of Larose, La., and C. H. Tool of Washington, D. C.

PERMANENT SUPPORT

for your Poles

and Aerial Cables

ALUMOWELD®

guy and messenger strand

You can forget all about maintenance costs when you install Alumoweld Strand. This low-cost guy and messenger strand is designed to last as long as the pole it guys or the cable it supports.

A thick cladding of pure aluminum gives Alumoweld the same high resistance to corrosion as solid aluminum. This protective aluminum covering, which will never crack, flake or peel, is inseparably welded to the steel core by the unique controlled atomic-welding process. As a result, the strong steel core is constantly protected against corrosive attack and its original high strength is permanently maintained.

Alumoweld is as strong as steel. And its light weight—18% less than steel of comparable diameter—makes it easier to handle, easier to install.

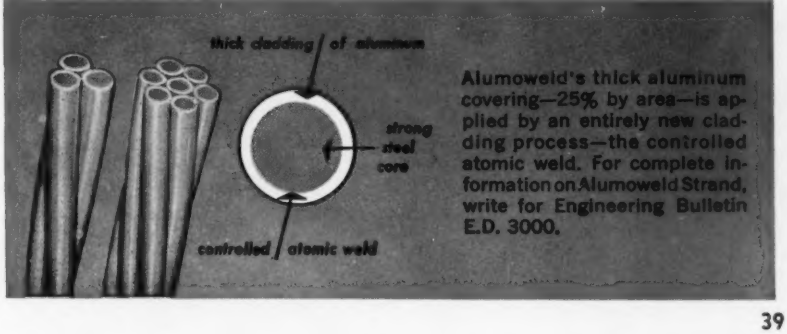
Supplies of Alumoweld Guy and Messenger Strand are available for prompt shipment to you from our warehouses in New York, Chicago, Pittsburgh and Memphis.

COPPERWELD STEEL COMPANY

WIRE AND CABLE DIVISION Glassport, Pa.

For Export: COPPERWELD STEEL INTERNATIONAL COMPANY, New York

Canadian Distributor: NORTHERN ELECTRIC COMPANY LIMITED



Alumoweld's thick aluminum covering—25% by area—is applied by an entirely new cladding process—the controlled atomic weld. For complete information on Alumoweld Strand, write for Engineering Bulletin E.D. 3000.

ALL HANDS GO FOR TYPE 90... THE PRACTICAL WALL PHONE

For Hands That Install and Maintain...**A Real Snap**

Loosen one screw, the cover lifts off and you fasten Type 90 to the wall (handset stays in the cradle). The loop compensator is adjusted from the front. To remove the dial, just push and lift. And, you can remove the ringer from the front—without taking the phone off the wall.

Type 90's ***slam-proof cradle bracket*** means fewer maintenance calls, too. The chrome-plated cradle is securely fitted to a sturdy shaft that turns in a long bearing-bracket...won't break even under the toughest slamming!

The ***wrap-around cradle*** holds the handset snugly, keeps "off-hook" troubles to a minimum. The handset can't be dragged, brushed or knocked off the hook.

For Hands That Spin The Dial...**A Real Pleasure**

Your subscribers like Type 90's smart, functional design. Its shallow profile and ***side-mounted handset*** keep it from sticking into the room. The ***special-angle dial*** makes the numbers easier to read. People like to choose from 10 decorator colors, too. They're sure to find one to fit their color scheme.

All these features make Type 90 a pleasure to use. And pleased subscribers do wonders for revenue. Why not let yours do wonders for you? To order, just write: Automatic Electric Sales Corporation, Northlake, Illinois. Or call Fillmore 5-7111. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16, Ontario.

AUTOMATIC ELECTRIC

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

increased value of telephone service and the higher cost of providing this service in today's enlarged local calling areas."

One of the changes proposed by SBT&T includes reclassification of certain cities and towns that have grown out of the rate group classifications in which they were placed when the rates were fixed by the commission in 1952. The reclassification of these exchanges would result in a small increase in the basic price of local exchange service.

A further proposal would employ a broadened band, or zone basis, for determining mileage charges, which would bring about a reduction in rates for a majority of suburban and rural subscribers.

Another company proposal would eliminate a 20-cent additional charge now applicable to collect intrastate, station-to-station, long-distance messages. This added charge would be eliminated, where the initial rate was more than 35 cents, and reduced on messages where the initial rate was 35 cents or less.

Pulse Code Modulation Set For Short Distance Trial

Housewives, businessmen and teenagers in Newark, N. J. didn't know it, but on July 25 they began talking over the telephone in the language of computers—a mathematical code of high-speed electronic pulses.

The callers were unaware, as they talked with people in nearby Passaic, that pulse code modulation, an experimental system being tried out by Bell Telephone Laboratories in cooperation with the New Jersey Bell Telephone Co., was "slicing" up their voices and translating the slices into a code.

Only this coded signal—not the usual "voices"—went over the wires. At the far end of the line, the system took the coded signals, rebuilt them into voices, and delivered them sounding the same as ever.

This method of carrying voices in ordinary telephone conversations is perhaps the most radical departure yet seen from the electrical "model" that carried Alexander Graham Bell's first historic message.

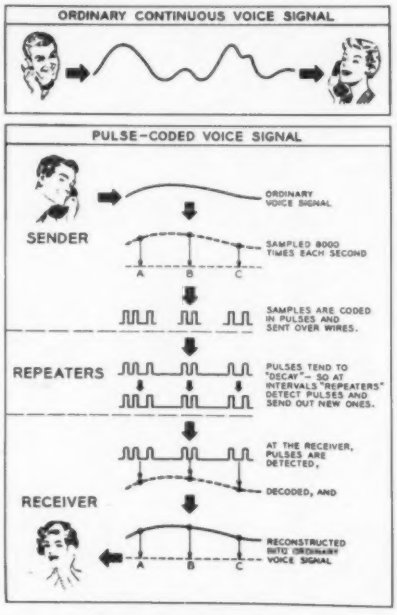
The principle is called "pulse code modulation," or simply "PCM." The experimental system now in operation between Newark and Passaic is called the T-1 system.

Instead of sending a continuous voice signal, the T-1 takes samples of the speaker's voice very rapidly—about 8,000 times a second. These samples are encoded into a series of pulses, and the pulses are sent out over the wires. At intervals of approximately 6,000 feet, the coded signals are reconstructed and sent on to the next repeater point.

Bell Telephone Laboratories engineer H. E. Brown, above, and M. S. Coldenhoff, technical aide, install transistorized repeaters in a Newark, N. J., manhole on the route to Passaic, N. J. The equipment is part of the T-1 system on trial, which uses the principle of "pulse code modulation."

The system sends pulses over the wires so fast—1½ million per second—that the codes of many different voices can be interlaced on the same wires, thus increasing the message capacity of the wires.

The T-1, forerunner of PCM systems that may eventually stretch across the country, was designed to serve metropolitan area routes of up to 25 miles.



This diagram illustrates the difference between the conventional "electrical model" of the voice by which telephone calls are transmitted, above, and the pulse-code modulation method, below. In the pulse-code modulation method now on trial between Newark and Passaic, N. J., the conventional electrical model comes into a sending unit from the user's telephone. Not shown on the diagram are the pulses representing many other speakers' voices, which are interlaced and fed over the line also. The result is an increase in the number of voices carried over the wires.

(Other systems that permit wires and cables to carry many messages have been used for years but they have been economically feasible only over fairly long routes.)

The new system is expected to be particularly useful in large cities such as New York, where congestion below ground has often made it difficult to find room for additional telephone conduit.

To install T-1, companies will not have to dig up city streets. Instead, using existing cable, they can connect terminal equipment in telephone buildings at each end of the route, and repeater equipment in manholes or on poles along the way.

The system is made feasible by the development of transistors, other semiconductors, and the development of small, reliable transistorized repeaters for manhole installation.

T-1 was developed by Bell Telephone Laboratories in its Murray Hill, N. J., and Merrimack Valley, Mass., locations. It will be manufactured by the Western Electric Co. starting later this year, for general use throughout the Bell System.

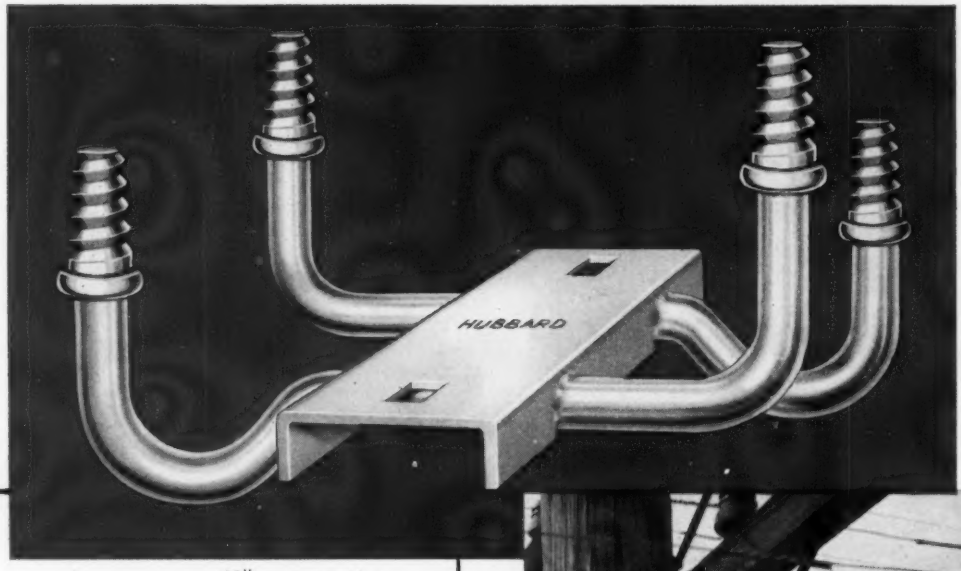
The theoretical basis of PCM was laid by scientists and engineers dating back to the early 1920's. The first working system was developed by Bell laboratories and was used by the Army over radio during World War II. Other experimental systems pointing toward commercial telephony have been built at the laboratories during the intervening years.

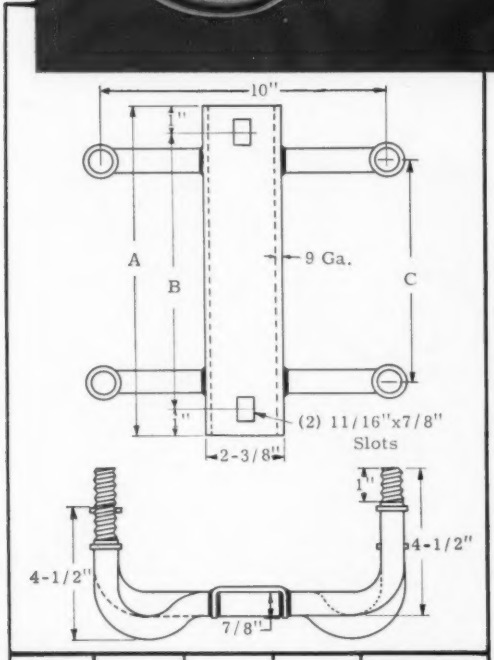
The use of PCM over wires did not appear technically and economically feasible until invention of the transistor in 1948 and subsequent transistor development.

The technical feasibility of PCM over wire pairs was proved by an experimental installation between Summit, N. J., and South Orange, N. J., in 1958. Customers were not connected

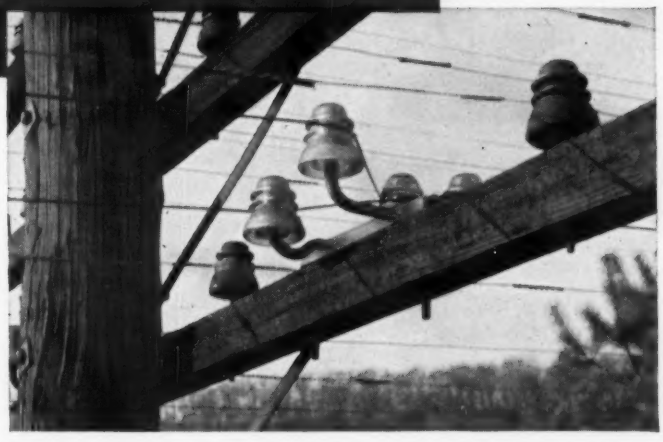
(Continued on page 46)

STRONGER... *Lighter...*
TO MEET YOUR TRANSPOSITION NEEDS





Stock No.	A	B	C	Weight Pounds Per 100 Pieces
9227	12"	10"	8¾"	650
9228	14"	12"	10¾"	690
9238	10"	8"	6¾"	615



This new point-type transposition bracket was developed recently in order to combine maximum strength with minimum weight, thus assuring trouble-free service under the most adverse operating conditions. Although the function of this type bracket remains unchanged, the physical characteristics differ considerably from earlier designs as a result of modern, all welded construction.

This style bracket was designed for spindle threaded insulators and is mounted by means of two ⅝-inch carriage bolts (not included). Crossover clearance is 1-inch.

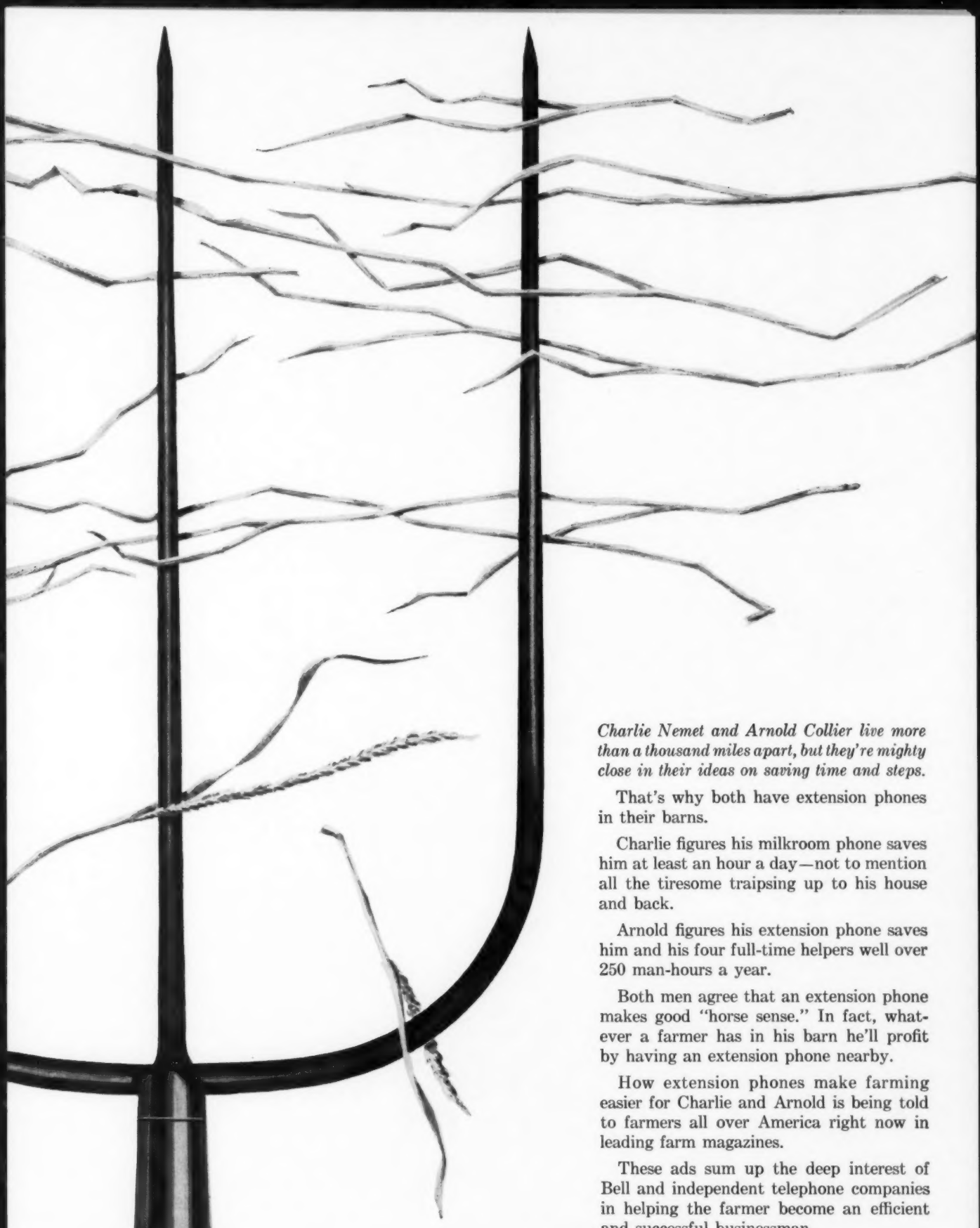
The point-type transposition bracket is but one of many styles available. Contact your nearest Hubbard representative for further details on this and other designs.

HUBBARD AND COMPANY
CHICAGO 50, ILLINOIS

These farmers use good, modern "horse sense" to save time and steps

Charlie Nemet of Hampshire, Illinois

Arnold Collier of Dixon, California



Charlie Nemet and Arnold Collier live more than a thousand miles apart, but they're mighty close in their ideas on saving time and steps.

That's why both have extension phones in their barns.

Charlie figures his milkroom phone saves him at least an hour a day—not to mention all the tiresome traipsing up to his house and back.

Arnold figures his extension phone saves him and his four full-time helpers well over 250 man-hours a year.

Both men agree that an extension phone makes good "horse sense." In fact, whatever a farmer has in his barn he'll profit by having an extension phone nearby.

How extension phones make farming easier for Charlie and Arnold is being told to farmers all over America right now in leading farm magazines.

These ads sum up the deep interest of Bell and independent telephone companies in helping the farmer become an efficient and successful businessman.

BELL TELEPHONE SYSTEM

Chance power tools operate from air or hydraulic power. Air-powered tools operate from an air compressor or bottle of CO_2 or dry nitrogen. Hydraulic-powered tools operate from the standard hydraulic source of the insulated bucket mechanism, truck "A" frame or winch. The line includes pruners, saws, brush cutters, cable cutters and guy strand cutters.

Linemen like the way these tools do their work with just a press of the thumb on the trigger. Their light weight makes them easy to handle in buckets or on a pole. You gain by getting maximum utilization of your skilled line personnel.

Ask your Chance man for Power Tool information, or write for Bulletin 635.

CT61-28

A. B. CHANCE CO.

CENTRALIA, MO. • EMpire 2-2121

A. B. Chance Co. of Canada, Ltd., Toronto

during that trial. The current trial of the T-1 is the first application of PCM to handle ordinary commercial telephone calls. It is meant to uncover any unsuspected effects of actual working conditions and to establish the best operating techniques.

PCM's pulse-code language, known as "binary" or "digital" code, is a numbering system that uses only two digits rather than the 10 digits of the decimal system.

Thus, where a decimal number has places for the powers of 10—hundreds, thousands, and so on—a binary number has places for the powers of 2—four, eight, 16, and so on. A binary expression can convey any number.

A binary number can also be considered the answer to a series of yes-or-no questions, as in the game of "Twenty Questions." With enough digits, it is thus possible to convey any sort of information.

Ohio Mutual Petitions for $6,200 Rate Increase

The Vanlue Mutual Telephone Co. has petitioned the Ohio Public Utilities Commission for approval of a $6,200 annual rate increase, it was reported on July 26. The company serves 435 subscribers.

Present and proposed rates are as follows:

	Present	*Proposed*
One-party business	$5.00	$6.50
Two-party business	3.75	5.50
One-party residence	4.50	6.00
Four-party residence	3.50	4.50

The company reported that costs since 1956 have increased 1.3 times as much as operating revenues.

Pa. Company Gets Approval To Raise Rates by $18,800

The Pennsylvania Public Utility Commission approved an $18,800 annual increase, effective July 31, for 2,314 subscribers of the Citizens Telephone Co. of Kecksburg.

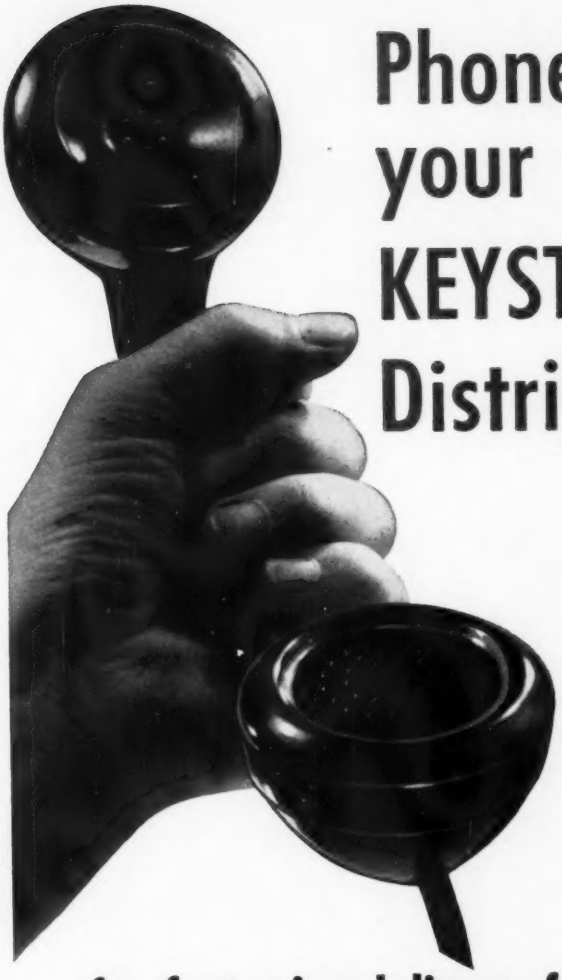
Old and new residence rates are as follows:

	Old	*New*
One-party	$4.00	$4.50
Two-party	3.25	3.75
Four and multi-party	2.25	3.00

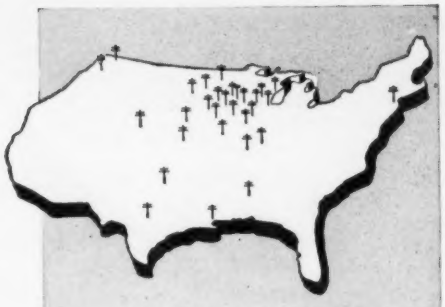
Business rates are to be increased proportionately.

Ark. Company Gets Loan Approval; Plans Expansion

The Arkansas Public Service Commission on July 26 authorized Prairie Grove Telephone Co. to borrow $150,000 from the Bankers National Life



Phone your KEYSTONE Distributor



British Ropes Canadian Fact., Ltd.
Vancouver, B. C., Canada

Crescent Electric Supply Company
Burlington, Iowa
Dubuque, Iowa
Cedar Rapids, Iowa
Davenport, Iowa
Madison, Wisconsin
Mason City, Iowa
Ottumwa, Iowa
Peoria, Illinois
Quincy, Illinois
Rapid City, South Dakota
Sioux City, Iowa
Sioux Falls, South Dakota
Spencer, Iowa
Sterling, Illinois
Waterloo, Iowa

Dakota Electric Supply Co.
Fargo, North Dakota

Joslyn Mfg. and Supply Co.
Birmingham, Alabama
Chicago, Illinois
Dallas, Texas
New Orleans, Louisiana
New York, New York
No. Kansas City, Missouri
Oklahoma City, Oklahoma
Omaha, Nebraska
St. Paul, Minnesota

Kingsport Electric Co., Inc.
Kingsport, Tennessee

Line Material Industries
Milwaukee 1, Wisconsin

Marshall-Wells Canadian Companies, Ltd.
Winnipeg, Manitoba, Canada

The Mine & Smelter Supply Co.
Salt Lake City, Utah

Nelson Electric Supply Co.
Dallas, Texas
Lubbock, Texas

Jack Pruzan Co.
Seattle, Washington

Southern Electrical Corp.
Chattanooga, Tennessee

Suttle Equipment Company
Chicago, Illinois
Lawrenceville, Illinois

Tele-Wire Supply Co., Inc.
Jamaica, New York

Tennessee Valley Electric Supply Co.
Nashville, Tennessee
Memphis, Tennessee
Little Rock, Arkansas

Wheeler Lumber Bridge & Supply Co.
Norfolk, Nebraska

. . . for fast wire delivery from stock

When wire is needed, call your Keystone Wire Distributor. His stocks are well supplied. He can give you prompt delivery in any emergency.

Keystone Telephone Wire is available in a full range of Class A line wire in 50M, 85M, and 135M tensile strengths, and meets the specifications of A.S.T.M., A.T.&T. and is approved by R.E.A. Galvanized bond, tie and construction wire are also available at your Keystone Distributor.

A phone call will bring you fast delivery . . . contact your nearest Keystone Distributor for your next wire need!

KEYSTONE STEEL & WIRE COMPANY, Peoria 7, Illinois

KEYSTONE
Wire for the Telephone Industry

. . . by the makers of famous Red Brand Fence

Insurance Co., Montclair, N. J. (TELEPHONY, July 29).

The money is to be used to refinance short-term loans and to pay for an expansion program, including the provision of telephone service to Devil's Den State Park.

The company operates in Prairie Grove, Lincoln, Farmington, Morrow and Dutch Mills.

OK SW Bell Service Request; Approve Loan, Sale in Ark.

The Arkansas Public Service Commission on July 7 granted the Southwestern Bell Telephone Co. permission to serve the Swan Lake Exchange area and the Tupelo exchange area.

•

Also in Arkansas, the commission on July 26 authorized Prairie Grove Telephone Co. to borrow $150,000 from Bankers National Life Insurance Co.

•

On July 27, Jasper Telephone Co., owned by Nellie M. Kilgore, was given permission to sell to the Tri-County Telephone Co., Everton.

Telephones Inc. Registers Stock Offering with SEC

Telephones Inc., Chicago, Ill., has filed a registration statement with the Securities & Exchange Commission covering 250,000 shares of common stock.

Of the 250,000 shares to be offered, 200,000 are to be sold for the account of the company, with the remainder offered for certain shareholders. Hayden, Stone & Co. will head the underwriting group.

Officers of Telephones Inc. are: Chairman and treasurer, Bertel T. Malmquist; co-chairman and secretary, Leroy T. Carlson; president, Perry D. Woodward; vice presidents, Rudolph E. Hornacek and Wallace C. Olson; controller, Paul O. Cohrs.

Telephones Inc. operates telephone companies in Kentucky, Illinois and Iowa. It has eight operating subsidiaries serving some 31,000 subscribers in 73 communities.

Proceeds from the sale of the stock will be used to retire debt and to acquire eight other operating companies in Illinois, Iowa and Kansas, the company reported. One of the companies to be acquired, Northern Kansas Telephone Co., furnishes communication facilities for the Air Force Atlas Missile Complex near Topeka, Kan.

AT&T To Lease Circuits To WU for New Services

A tentative agreement has been reached between American Telephone & Telegraph Co. and Western Union, AT&T announced on Aug. 3, under which Western Union may lease circuits from the Bell System to provide various combinations of voice and non-voice services, including private line telephones.

For many years Western Union has leased Bell circuits to provide telegraph services.

The AT&T statement said: "Recent communications developments, particularly in the data transmission field, have made it seem desirable to Western Union to offer additional services. These new arrangements would enable it to do so over facilities leased from the Bell System."

The new leasing arrangements are on a reciprocal basis, AT&T said, so each company can rent facilities from the other, rather than build its own, whenever it would be to its advantage to do so.

The transmission symposium shown above, held recently in Kansas City, Mo., drew 29 men from 10 Independent companies located in Missouri, Kansas and Iowa. Sponsor was R. B. Uhrig of Graybar Electric Co., Inc. K. C. Gillette of Communication Equipment & Engineering Co. (CEECO), was moderator, and D. L. Kuntz (CEECO), John Buscemi (Anaconda Wire & Cable Co.), and R. J. Surgi (S & G Mfg. Corp.) were discussion leaders.

29 Independent Men Attend Transmission Symposium

A transmission symposium was sponsored recently in Kansas City, Mo., by the Graybar Electric Co., Inc. Twenty-nine Independent telephone men from 10 companies located in Missouri, Kansas and Iowa, attended.

K. C. Gillette of Communication Equipment & Engineering Co. (CEECO), was moderator, and D. L. Kuntz (CEECO), John Buscemi (Anaconda Wire & Cable Co.), and R. J. Surgi (S & G Mfg. Corp.) were discussion leaders.

Subjects discussed were:

Transmission improvement using loading coils.
Voice frequency repeaters.
Carrier systems.
Saturable reactors.
Trunk and subscriber loop design with emphasis on transmission telephone facilities, including cable, instruments, and battery supply. Also associated problems including load spacing irregularities and impedance compensation.
VNL (via net loss) transmission design of toll facilities.
Transmission testing to determine whether regulations have been met.
Solutions to other special problems.

Those present at the symposium were:

Harvey Kelley, Raymond R. Walters and Richard Starrett of Northeast Missouri Rural Telephone Co., Green City, Mo.
Floyd Bridges, Charles A. Culver

DIAL BUT THIS!

Only the North Electric
ERICOFON®
has the "dial that comes to you"... a real convenience. It's the fastest-selling, most wanted telephone today! The Ericofon is available to you... but only from

THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

NORTH ELECTRIC COMPANY

GALION, OHIO

NORTH

LOW COST...

RELIABLE
PRECISION
TRANSISTORIZED

Transmission Test Equipment

NEC

A line of portable, lightweight, transistorized test equipment designed and constructed in accordance with the highest standards of quality to meet the present and future needs of the engineer and field man, and developed specifically for the telephone industry.

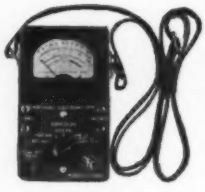
MODEL TTS 4A
TRANSMISSION TEST SET

- Measuring Range: +18 dbm to −50 dbm
- Send Levels: 0 dbm to −40 dbm. Can be supplied with +10 dbm level.
- Send Frequencies: 10 fixed frequencies, including 1300 and 2300 cps, plus continuous tuning from 20 cps to 20 Kc with Model TTS 4XV accessory cover.
- Impedances: 600 and 900 ohms
- Self Calibrating
- Talk and Hold Circuits

MODEL TTS 15A TRANSMISSION TEST SET

- Measuring Range: +8 dbm to −30 dbm
- Send Levels: 0 dbm to −30 dbm
- Send Frequencies: 8 fixed frequencies including 1300 and 2300 cps
- Impedances: 600 and 900 ohms
- Switchable Hold Coil
- Switchable Termination: 900 ohms +2 mf
- Simultaneous Send and Receive

MODEL TTS 18A LEVEL and DC CURRENT METER



- Level Ranges: 0 dbm to −20 dbm and −10 dbm to −30 dbm
- DC Current Range: 0 to 100 ma
- Dial Through Provisions
- Battery Check
- Wide Frequency Response

Other instruments available from Northeast Electronics Corporation include Single Frequency and Multi-Frequency Reference Tone Generators, Loop Around Transmission Test Systems, Fault Locator, Singing Point Test Set, Program Amplifiers, and RF Power Monitors.

IN CANADA: TELE-RADIO SYSTEMS LIMITED/3633 Dundas St. W., Toronto 9, Ontario/RO. 2-8224 Area Code 416

WRITE FOR COMPLETE CATALOG

NORTHEAST ELECTRONICS CORPORATION
AIRPORT ROAD, CONCORD, NEW HAMPSHIRE

and Wayne Clevenger of Inter-County Telephone Co., Gallatin, Mo.

Bill D. Foror and Lloyd Shomar of Bolivar Telephone Co., Bolivar, Mo.

Claude A. Sevan, Dean Shockley and Richard Byers of Grand River Mutual Telephone Corp., Princeton, Mo.

Leon McDowell and James Collins of Swan Lake Telephone Co., Mendon, Mo.

Robert L. Stroup and Harold A. Jones of Mid-Missouri Telephone Co., Gilliam, Mo.

Fred Busey of Northwest Iowa Telephone Co., Sargeant Bluff, Ia.

Bud Bryan, Henry Sompoil, Walter Johnson, Carlos Cooper and Le Roy Bearden of Chariton Valley Telephone Co., Bucklin, Mo.

Gene Bertels, Albert J. Seitz and Phil H. Marshall of Northern Kansas Telephone Co., Ottawa, Kan.

Fred Thorn, Elvin Durr, John Herdt, Eddie Mares and Don W. Kaps of United Telephone Co. of Missouri, Kansas City.

Keith Quillan, Harold Tuck and Lyndell Hurt of Finley Engineering Co., Lamar, Mo.

Jim S. Kobayashi of Gault, Moore & Stevens Engineering Co., Gardner, Kan.

John Brough, Bob Uhrig and Ed Olson of Graybar Electric Co., Inc., Kansas City, Mo.

W. E. Gilbert of Graybar in Omaha, Neb.

Milton E. Vail of Cook Electric Co. and with headquarters in Springfield, Mo.

K. C. Gillette and D. L. Kuntz of Communication Equipment & Engineering Co., Chicago, Ill.

Frank N. Stone and Roy J. Surgi of S & G Manufacturing Corp., New Orleans, La.

John Buscemi of Anaconda Wire & Cable Co., Hastings-On-Hudson, N. Y.

FBI Investigating Bomb Blast In Miss. Telephone Booth

Federal agents are investigating the bombing of a Southern Bell Telephone & Telegraph Co. paystation booth in Ocean Springs, Miss., on July 19.

Local police chief Wylie Broome said he thought the bombing was another act of the vandalism against public telephones which has been occurring lately.

The blast occurred about 9:35 p.m. and startled residents for blocks.

It shattered glass for hundreds of yards, but caused no injuries.

Demolition experts from a nearby Air Force base are going over the area in order to determine the type of bomb used.

Iowa Mutual Announces New Rate Schedule

Creston (Ia.) Mutual Telephone Co. has announced that its rates were to be increased effective Aug. 1.

New rates are as follows: Business, $9.00; rural business, $5.00. Residence, one-party, $5.00; two-party, $4.25; four-party, $3.75; rural, $4.00.

The company cited ice storm dam-

age during the winter as one of the reasons making a rate increase necessary.

Kansans Saluted by AT&T As 2-Millionth Shareholders

Hugh T. Polson, a Wichita, Kan. druggist, his wife, Irene, and their two children, Kay Louise, 9, and Stephen Hugh, 7, on July 26, were guests of American Telephone & Telegraph Co. in New York City to receive stock certificate No. 2,000,000.

Frederick R. Kappel, AT&T president, presented the milestone certificate to the Polson family during a ceremony at company headquarters. In introducing the Polsons to a representative cross-section of AT&T employes, Mr. Kappel said:

"This is an historic occasion. This is the first time that any company in the world ever reached a point where it had 2 million owners. Only in America could something like this happen. I think this is real evidence of how well the American free enterprise system operates. It is also the most convincing vote of confidence any business could hope for.

"The support and confidence of our shareowners make it possible for us to provide good and improving communications service. And it is just as true that if we did not provide good service, we would not have such widespread shareowner support.

"As our 2-millionth share owners, Mr. and Mrs. Polson symbolize the tens of thousands of people whose confidence in our future has led them to invest their savings in this business."

The Polsons jointly own 10 shares of AT&T stock, which they bought as part of a diversified investment plan to provide for their children's education.

Mr. Kappel also presented the Polsons with a newly designed push-button Princess telephone bearing the inscription: "Presented to Mr. and Mrs. Hugh T. Polson, Two-Millionth AT&T Shareowners, July 26, 1961."

This presentation occurred a little more than a decade after AT&T ownership reached the one-million mark. That was on May 15, 1951, when Mr. and Mrs. Brady Denton of Saginaw, Michigan, went to New York to receive Certificate No. 1,000,000.

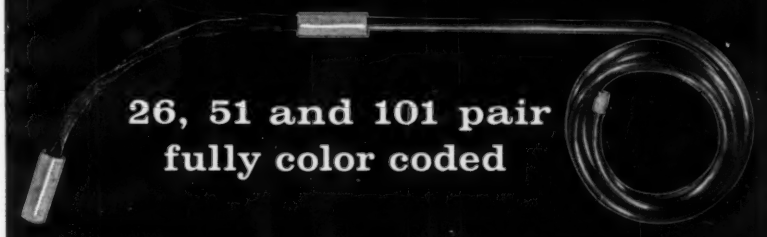
Mr. Kappel recalled that since 1951, AT&T has introduced "literally hundreds of new services and products, which have increased the speed, convenience and scope of telephone service."

He described the company's plans for a satellite communications system, and gave a brief rundown on the Bell System's contributions to science and defense.

Noting that Wichita is among the more than 21,000 American cities,

MD

CABLE STUBS



The MD Cable Stub is a section of lead sheathed, polyvinyl chloride insulated 24 AWG cable with a pressure plug (gas dam), factory installed at the end of the sheath. Each stub is factory tested to insure that it is gas tight before shipment.

FOUR PRIMARY USES OF THE MD CABLE STUB

1. Permits the use of Ready Access type terminals on paper and pulp insulated cables.
2. Simplifies splicing of paper and pulp insulated cable to plastic insulated conductor (PIC) cable.
3. Makes possible the use of Ready Access type loading on paper and pulp insulated cable.
4. Makes "tipping out" of paper insulated cable easier.

Reliable

A Symbol of Integrity Since 1909

Installation Specification No. 109 describes installation procedures for MD Cable Stubs. Send for yours today.

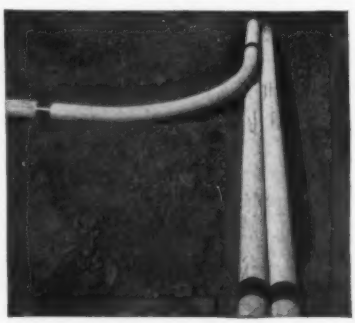
ELECTRIC COMPANY
Franklin Park, Illinois

Safeguard cables permanently at the lowest cost with J-M Transite Ducts!

Transite® Ducts, made of tough, durable asbestos-cement, provide rust-free, corrosion-resistant protection for the life of your telephone cables. And, they can be installed, operated and maintained at the lowest possible cost!

Available in 10-foot lengths, light-weight Transite saves installation time and requires smaller installation crews. Because these ducts can be laid in direct contact with each other, no between-tier backfilling is necessary. This means shallower, narrower trenches and lower excavation costs. Transite's easy-to-install plastic coupling is a real money-saver, too! With a flexibility of 5 degrees, it permits simplified splaying without special fittings. Installation savings of up to 15¢ per foot have been made!

Transite ducts require little, if any, maintenance. The permanently tight joint keeps out water-borne silt and dirt. What's more, it permits pneumatic rodding which can save you 5¢ a foot. No wonder one out of every four feet of telephone duct installed in 1959 was Transite. For further information write Johns-Manville, Box 362, TY-8, New York 16, N. Y. In Canada: Port Credit, Ontario.



JOHNS-MANVILLE

JM PRODUCTS

towns and villages in which AT&T stockholders live, Mr. Kappel reported that individuals own 94 per cent of all the stock. He said that about 1,400,000 persons have fewer than 100 AT&T shares; 335,000 persons hold between one and 10 shares; 495,000 persons own between 11 and 30 shares; nearly 230,000 own 31 to 49 shares; and 350,000 own 50 to 99 shares.

Entertainment of the Polsons included an AT&T employe-hosted luncheon, visits to the New York Stock Exchange and to Bell Laboratories at Murray Hill, N. J., and a tour of Washington.

Both Mr. and Mrs. Polson are native Kansans. They met in 1947 while she was working for the Topeka exchange of Southwestern Bell Telephone Company, and he was studying pharmacy at the University of Kansas.

The son of a pharmacy owner at Moline, Kan., Hugh Polson attended Washburn College at Topeka.

In the Navy during World War II, he saw duty in the Pacific battles of Saipan, Tinian and Okinawa.

After the war, he studied pharmacy both at Kansas and at Idaho State College at Pocatello.

He was married at the end of his sophomore year, and was called back into the service for the Korean War. The Polson's first child was born at Mare Island Naval Hospital, where Polson served as a pharmacist.

He worked as a drug salesman at Hays, Kan., and saved his money, and in 1954, bought the Wichita pharmacy he now operates. Polson terms the business "sort of a neighborhood store" that carries a variety of items besides drugs.

"I have tried to build it up by giving good service and by trying to be a good neighbor," he said.

Mrs. Polson said her husband frequently goes to the pharmacy at night to make up a prescription for somebody who needs it in a hurry. "We have two children," she said, "and we know that sickness is a 24-hour problem."

For several years, Polson put in a 13-hour day, seven days a week, and though he now has help and his hours are down from 90 a week to 60, he still works hard.

Despite this work schedule, the 2-millionth AT&T shareholder participates in community affairs as a member of the Pleasant Valley Lions Club, is chairman of the Interprofessional Relations Committee of the Kansas State Pharmaceutical Association, and is past president of the Kansas South Central Area Pharmaceutical Association.

N. Y. *Times* Reports World Interest in Satellite Program

Nations all over the globe have expressed eagerness to participate in the United States communications satellite program, according to a report by John A. Osmundsen in the Aug. 6 New York *Times*.

Mr. Osmundsen said this would appear to be in response to President Kennedy's invitation to all nations to participate in the system "in the interests of world peace and closer brotherhood among peoples throughout the world" (TELEPHONY, Aug. 5).

The National Aeronautics & Space Administration has reported, Osmundsen stated, that negotiations have been completed with Britain and France for ground stations in those two countries. Similar agreements are being pursued with Brazil and West Germany.

Quite a number of other countries have approached the agency, NASA disclosed, to learn how they might take part in the space venture. Among them were Argentina, Canada, Italy and Japan.

Osmundsen also quoted an American Telephone & Telegraph Co. spokesman as saying that his company had been approached by several foreign governments including West Germany, England, France, Japan and Italy. So far, the discussions have been of a "most general" nature, the AT&T informant is reported to have stated.

The first AT&T satellite is scheduled for launching on Apr. 17, 1962. Messages will be beamed to the satellite from a 177-foot long horn antenna, which is being constructed at Rumford, Me.

The French plan a 60-foot horn antenna, the British an 85-foot dish antenna.

Mr. Osmundsen stated that the experimental nature of the shots and the newness of the entire venture may be responsible for some of the confusion reported to exist in some countries as to exactly what should be done and who should do it.

The 3,000 to 4,000 mile apogee of the satellites' orbits for example, is feared to be too low for effective experimentation in Japan, Osmundsen said.

At the end of Mr. Osmundsen's story, the *Times* featured a round-up from various countries detailing their satellite plans, as follows:

Britain—The British Post Office is building an experimental radio station at the southern tip of England in preparation for tests of communications satellites next year. They will cover

PARSONS® 77 TRENCHLINER®

DITCHES, LAYS CABLE for 1½¢ per foot

A cable installation department of a major telephone company recently cut cable laying costs of 5 to 9 cents per foot down to 1½¢ per foot with a 77 Trenchliner. Results such as these are not unusual with the 77.

Here's why...

SPECIAL CABLE LAYING DEVICE — rubber wheeled cable feeder protects cable, lays it down in ditch automatically as 77 moves ahead.

BIG CAPACITY, SMALL DIMENSIONS — the 77 delivers up to 21 lineal feet of trench per minute, yet isn't much wider than a yardstick. Ideal for close-quarter work.

DIGS TO 5′ DEPTHS, 6″ to 18″ WIDE — ladder type boom starts cut fast, holds accurate grade. Vertical set-in work, and undercutting is no problem.

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Please send bulletin on the 77 Trenchliner®

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We Welcome your Comparison

of the

DAVIS T-66

against all comers!

AS A TRENCHER...AS A BACKFILLER

Find out why owners from coast to coast, border to border and in many foreign countries, call it their "Best Money-Maker"!

The T-66 makes its owners more money because it does the complete job from initial cut to backfilling with greater efficiency than any two machines. A competitive demonstration will prove it. Extra-heavy, 1400-lb. weight, large track shoes, and a unique hydraulic drive combine for ground-gripping traction that gives accurate ditching control and backfilling power. No rubber-tire bounce! Hydraulic boom control makes you the "boss" of the digging depth and backfill blade. Agile backfilling maneuverability is attained by Instant Forward/Reverse. No trencher touches it in the range between **12" wide,** 30" deep and 4" wide, **66" deep.** It can also be equipped to dig **16" wide,** 24" deep — or **flush** alongside walls and fences. Built to handle toughest assignments. Produced by men who are leaders in the design of digging equipment.

the DAVIS HUSTLER UTILITY TRAILER

This 2000-lb. capacity, tilt-bed trailer for the T-66 and other loads has low center-of-gravity stability and load equalization suspension system. Sides optional.

the DAVIS PUP TRENCHER
Self-Propelled

Digs by itself. This self-propelled trencher is driven by a six-speed winch mechanism. A productive tool for trenches 2"-3" wide to 36" deep, or 4" wide, 18" deep.

We Welcome Competitive Demonstrations!

See for yourself why the T-66 is the standard bearer of trencher value. Ask about its 90-day unconditional guarantee!

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Please send me descriptive T-66 literature and the name of my DAVIS dealer____. I am also interested in the Davis Pup____ Davis Hustler____.

NAME_____

ADDRESS_____

TOWN_____ STATE_____

D3-261

the transmission across the Atlantic of speech, telegraph and television.

France—France has made a policy decision to participate in the communications program. A representative of the Ministry of Posts stated that the French National Center for Communications Studies has been authorized to set up an experimental telecommunications center at Lannion near the Channel coast in Brittany.

West Germany—There are no concrete West German plans at the moment to join the United States in using a satellite for communications.

Japan—Scientists hope that the communications satellite will enable Japan to transmit live television coverage abroad by the time of the Olympic games to be held in Tokyo in 1964.

Japanese business and government research bureaus are going ahead with detailed plans to cooperate with the U. S. program.

Australia—Australia is interested and hopes to take part in the use of the communications services when they become available. However, no extra funds had yet been earmarked (at the time of the Aug. 6 *Times* report) to extend the space research facilities at Woomera Rocket Range to include communications.

Obituary

HAROLD J. BROWNLEE, 50, president of the Mallard (Ia.) Telephone Co., died of a heart attack at his summer home at Arnolds Park on July 26.

Besides serving as president of the local telephone company, Mr. Brownlee was a hardware merchant in Mallard, and a member of the Mallard Town Council.

Surviving are his widow; a son, John, a student at Iowa State University, Ames; a daughter, Mrs. George Cox of Des Moines, Ia.; and a sister.

Accuse Wis. Bondsman of Altering Directory Ads

A bail bondsman, who is accused of pasting his printed cards over competitors' advertisements in the Milwaukee classified telephone directory, was named on July 25 in a warrant charging violation of the Wisconsin forgery statute.

William R. McCormick, who operates the National Bail Bond Service, is accused of altering directories in the safety building, courthouse and other places.

The Wisconsin (Bell) Telephone Co. has had to replace 27 classified directories in the safety building and courthouse because McCormick's card had been pasted in them, according to Horace W. Dickey, Wisconsin Bell's district manager.

Competing bondsmen, who advertise in the Yellow Pages, had complained of a big drop in telephone business during the week of July 17.

Police investigating the case reported they found five of McCormick's cards pasted over competitors' advertisements in a directory in a police station. The advertisements often are consulted by arrested persons seeking release on bond.

McCormick was charged under a section of the forgery statute banning alteration of any writing of a kind commonly relied upon for the purpose of identification or recommendation.

He said he had entered the bonding business after the deadline for placing advertisements in the directory.

He denied having pasted the cards over competitors' advertisements, although he told police he had placed several cards inside directories.

MARKETING MAKES MONEY

Continued from page 22

demonstrate your products and services and how to stimulate customer interest to bring about an effective sales contact. Giving one person the proper training and adequate management support can result in all of your people receiving sound sales training, thus enabling you to cover all of your customer market in a manner that will bring in excellent sales results and create good customer relations.

Very early in the planning stage for an effective market coverage, there are certain specific things that you want to know. For example, you would want to be in a position to make a reasonable estimate of your revenue potential in the business and residential market. You would want some indication of the costs that would be involved, the types of organization that would be needed, an estimate of manpower or man-hours that should be devoted to this effort, and a clear understanding of the other benefits that could be anticipated from an investment of the time, effort and dollars necessary to create such a planned sales function.

Contact With Other Companies

Unfortunately, there are only a limited number of telephone companies which have had experience in this particular field, however, I am confident that their experience is available to you upon request. The results that have been realized in other companies' customer markets can serve as a sound basis upon which to project your revenue potential.

Cost figures in relationship to market coverage can be obtained, interpreted and applied to your own com-

KA-MO CAN...

New Ka-Mo G-16 gasoline powered boring unit

Speed your cable, conduit, duct work...

Ka-Mo boring equipment drills quickly through clay, gumbo, frost, shale, lime rock, and other mineral formations. Air, gasoline, hydraulic, and electric models are available for drilling hole sizes from 2″ to 48″ and larger.

Save you money

Not only does Ka-Mo boring equipment cost you less to operate and maintain, but it enables you to keep opencut work to a minimum. You can drill under road and highway without breaking pavement . . . bore beneath a lawn with a minimum of sod replacement.

Solve any drilling problem you have...

Ka-Mo drilling specialists have the experience and equipment to make short work of drilling problems . . . horizontal, vertical, or angular. Ask a Ka-Mo man to give you complete details, or write for bulletin.

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KWIK-MIX CO.
Ka-Mo Tools Dept.
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A Division of KOEHRING Company

Please send me a copy of the Ka-Mo earth boring brochure

Name_____

Company and/or Department_____

Street_____

City_____ State_____

Model GP-4400

A telephone Pearl

The PEARL is a dramatic telephone installation designed for locations where the decor demands a touch of elegance. It is an excellent unit for poolside patios, cocktail lounges, hotel lobbies, and restaurants.

Made from acrylic plastic, The PEARL is white in color. Lighting is provided by two fluorescent tubes behind the coin collector. Colored diffusers produce a mellow halo around the phone. Pink tubes with white diffusers are available.

The shelf above the directory space is covered with high-pressure laminated white plastic, sparkled with gold sequins.

The PEARL creates impulse calls, steps up profits. Order TODAY.

GLADWIN PLASTICS, INC.
165 COURTLAND ST., N. E.
ATLANTA 3, GEORGIA - 525–5384
Area Code 404

pany. The type of organization and the manpower required are items that will present you with no problem, once you have some idea of your revenue and cost relationship. Both of these items will depend a great deal upon the estimate of the extent of market coverage that you anticipate and the specific objectives that you establish for your program. To those of you who are interested, I can recommend you contact any of our General companies for any assistance that they might be able to render in connection with making your estimates.

Quite a few companies have developed a very effective approach to getting market coverage, particularly in the smaller communities, by using a portable display and manning it with qualified personnel. This unit is equipped with the various products and services that the company offers and, on a scheduled basis, it is taken into both the business and residential markets where the customer has an opportunity to check and have demonstrated the facilities that are available to improve his communications. Some very satisfactory results have been realized from this approach and it is an effective and economical way to cover the small exchange market. In addition to generating revenue, it also creates good public relations.

Sale for Every Three Contacts

In one company that I know, a mobile unit is located in the middle of a city block in the residential market and the housewives receive a personal invitation to visit the trailer. The result has been that it develops a neighborhood atmosphere and better than 90 per cent of all the housewives have gone through the unit and approximately one sale is realized from every three contacts.

Regardless of the approach that you may take to selling, you will find that what you have done is to personalize your service to your customers. You will find them flattered by it, appreciative of the interest and attention that the company is giving them as individuals and, as a result, you create a little closer relationship—a priceless contribution to your company's objective.

The importance of communications to our individual customers, combined with the complexity of modern business, make it mandatory that they receive individual assistance and service. As communications increase in value to them, they will demand this kind of communication service; if we are not equipped and qualified to provide it, someone else will, for this is a customer need that must be filled.

To enable marketing research to make a contribution to our telephone

operating companies, it will be necessary for us to create some type of clearing house to which all companies would send their experiences with specific products and services, and from which a summary of these experiences would be disseminated back to the companies. In addition, this clearing house might be able to make recommendations to our manufacturers and suppliers concerning product design and service to be offered.

I'm not suggesting that we in the telephone industry attempt to create a highly specialized, or highly sophisticated marketing research function. I'm simply conjecturing that through the USITA, or possibly the state associations, machinery could be set up that would enable us to collect our experiences and to use these experiences to the advantage of everyone.

For example, it might be helpful if the total industry's experience was available to all companies concerning: Room locations of wall-type installations; color preference; color preference by room location; per cent of instruments installed without ringer or signal—such installations broken down by room location; customer comments concerning a specific product or service; certain customer inquiries or requests concerning a service not presently available.

Information of this kind would serve as some indication concerning our customer preferences. It would place all of the companies in a position to realize the maximum sales results at a minimum cost, for we would be able to direct our sales efforts in the areas that have proven acceptance. In addition, a reasonable accumulation of this kind of information made available to our manufacturers might be of assistance to them in their efforts to develop any products, or to bring about major modifications of existing products.

It would appear that this field of marketing research would not lend itself to being incorporated in the basic marketing plan of most Independent operating telephone companies, but the need for such information and the value of this function is applicable to all of us. In view of this it might be advisable for us to give considerable thought and study to the best possible approach of developing marketing research for the Independent industry.

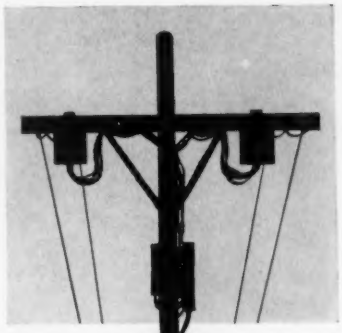
I sincerely believe that an effective marketing effort can be realized in all of the operating telephone companies in the Independent industry. However, it will require some prompt action on the part of the owners and managers of the Independent companies as well as an investment of time, money and effort by our various associations.

(To Be Continued)

Here's today's most complete selection of

LINE TREATMENT EQUIPMENT

for your every carrier application!



No matter what your problem, no matter what your requirement, Lynch has your line treatment equipment ready today for off-the-shelf delivery, field-proved for high performance, dependable for long-life operation under the most severe environmental conditions, housed in standard universal containers for ease of installation and flexibility.

And Lynch, the line treatment equipment supplier recommended by all its major communications competitors, is ready to help you solve your problem . . . with the individual filter or elaborate system . . . your every requirement met with shipment of components in a maximum of 30 days, complete systems, maximum 120 days.

Savings of 75% are possible for the simpler applications with Lynch low-cost equipment. Where highest quality transmission is the major requisite Lynch can "custom-engineer" your system to meet your requirements.

Write or call your Graybar representative or direct to Lynch for complete information on this broad line of Lynch line treatment equipment:

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Line filters	High pass transfer filters
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When you think of communication systems, think of Lynch—the independent which engineers, designs, manufactures and delivers communications equipment to match . . . and surpass . . . anything available today!

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COMPLETE . . .
FROM MAGNOLIA!

- CHLOROTHENE* does not corrode aluminum or aluminum alloys under ordinary conditions.
- VIREX—for use on telephones—aids in reducing the hazard of infection by airborne bacteria and viruses; used as a spray, makes air more pleasant and destroys disagreeable odors.
- TELEPHONE BOOTH GLASS CLEANER—easily dissolves smudge, film, scum, smear, bugs, and all soil; a new, easy push-button way to clean and polish.
- MARVEL TELEPHONE CLEANER—saturate clean cotton cloth and rub over instruments; one application takes off all stains.
- MAGNA MIST BOMBS—makes indoor air pleasant; aids in reducing hazard of infection by airborne bacteria and viruses.
- MAG-AL 3 ALUMINUM TELEPHONE BOOTH CLEANER—ideal for cleaning and shining your telephone booths both inside and out. Made especially for the telephone industry.

*This is Magnathene in liquid form.

MAGNOLIA CHEMICAL CO., INC.
CHICAGO • LAFAYETTE, INDIANA
TAMPA • DALLAS • LOS ANGELES

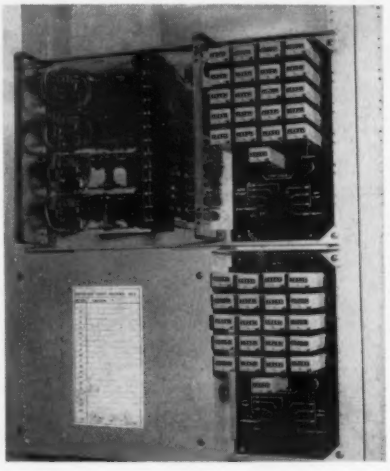
Order from your Telephone Supply Distributor

News on New Products

EDITOR'S NOTE: *Data on the products described below were received after Mr. Blain's article on new developments, appearing in this issue, was prepared.*

TRAFFIC RECORDER — Important data for speeding traffic flow are now available through the use of an XY traffic recorder, according to the manufacturer, the Telecommunications Division of General Dynamics/Electronics. The recorder provides an accurate record of circuits in use during a given period. This information can be used to determine busy hours, rate of traffic flow, overloading, and to make other traffic calculations.

The unit is said to perform efficiently with any type of step-by-step dial switching equipment. It gathers its information from the sleeve leads of a circuit group. Scanning each lead once every 10 seconds, it registers the number of grounded circuits and produces a circuit-in-use total.



Each recording unit can scan up to 20 circuit groups of 25 circuits per group. The amount of traffic flow will be expressed in tenths of unit calls. The 10-second rate of scanning is reported to allow an accurate record of calls with low as well as high holding times.

The recorder can be operated with manual start and stop, or can be run automatically. It may be run continuously or for a one, two or three hour period, the company states.

Control and recording equipment is bay mounted on 19-inch racks. The initial rack is equipped with supervisory and control equipment and cabling. Additional recording units can be placed in service when required. Equipment racks are available in two heights, 9 feet and 11 feet 6 inches.

Provision is made for cabling the sleeve leads directly to the recording units from the switching equipment or from a distribution frame. Request NP1684.

•

MULTIPLEXING SYSTEM — Collins Radio Co. has announced the availability of its C-8102 FSK voice band modem, a multiplexing system that

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

NP1684_____; NP1685_____; NP1686_____; NP1687_____.

Name.....

Company.....

Street.....

Town and State.....

8/12/61

provides up to 18 data channels from a single 3 kc voice channel. Maximum transmission rate is 75 bits-per-second, equivalent to 100 words-a-minute in teletype operation, on each channel.

The C-8102 modem communicates binary data for telephone signaling, teletype, telemetering, remote control and other applications. The system can operate unattended, Collins says, since no operating controls are necessary. All or any of the 18 data channels can be supplied.

The data channels consist of tone signals separated by 170 cycles in a frequency range of 425 to 3315 cps. Each tone signal is frequency-shift-modulated to convey the signal information in mark and space form. Full duplex operation, permitting simultaneous transmitting and receiving, or half-duplex operation, providing non-simultaneous transmitting and receiving, may be used, according to the company.

Diversity operation is available for additional communication reliability over radio circuits subject to selective fading. In diversity operation, two data channels communicate the same information on different frequencies. The diversity unit continuously compares the received signal from each channel and selects the stronger.

In operation, C-8102 modem transmitters employ frequency-shift keying to convert binary signals to audio tones, and receivers convert the audio tones back to binary information. The frequency of the carrier tone is shifted above and below the nominal center frequency to represent marking and spacing information. A third signal condition, no carrier, may be used for either supervisory control or fault alarm functions. Frequency-shift keying is said to reduce errors normally caused by signal level variations and noise.

Card cage type construction is used. Five channel ends, including transmitters, receivers and filters, are mounted in a single 5¼-inch mounted card cage. Options for hub operation, TWX supervisory control and other requirements are available in plug-in units or as part of the channel card. Request NP1685.

•

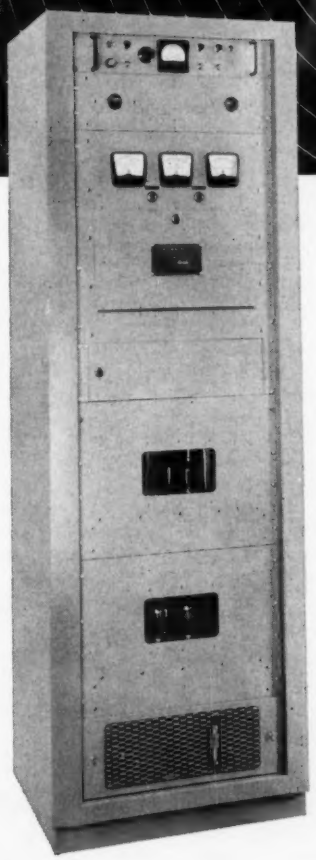
REGULATOR PANEL—Now available from Lenkurt Electric Co. is a panel for automatic frequency synchronization and signal level regulation on Channel 1 of its stackable three-channel Type 33A multiplexing system.

Designated the Type 331A Channel 1 regulator panel, it can be used as an option in new 33A systems or as an addition for existing 33A installations. Regulation circuitry effects a five-to-one ratio of output improvement over

A Stronger Heart for Your Paging and Signaling System

NEW BUDELMAN TRANSMITTER

Type B-250-VA4



Built for Years of Round-the-Clock Continuous Duty Service

With over 40 now in use as Bell System Radio base stations, these 25-50 mc central office transmitters deliver MAXIMUM SIGNAL COVERAGE in 1-way voice radio paging or tone signaling, because of their 250-watt carrier power and 100% modulation (for peak power of 1000 watts.) Over-modulation is prevented and sideband radiation, suppressed through the use of feedback, speech clipper and low-pass audio filter.

Designed well above FCC requirements, reliability and frequency stability are assured. Highest grade components are operated greatly below continuous duty ratings. Advanced engineering provides high efficiency and negligible spurious radiation.

Transmitted information may be broadcast for interception by voice paging or tone signaling subscribers. Local or remote control operation.

Increase the return on your investment dollar. Write for complete specifications

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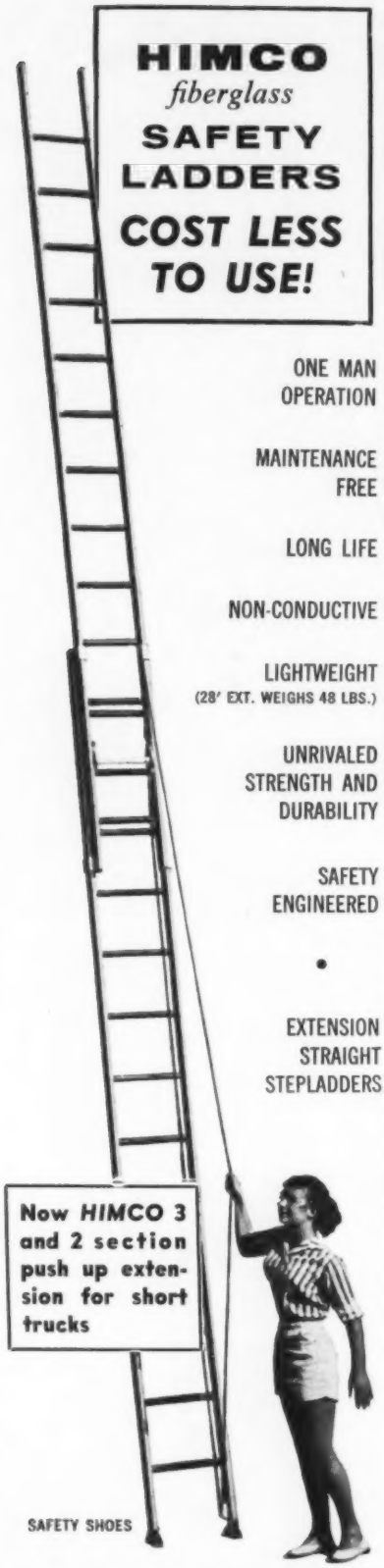

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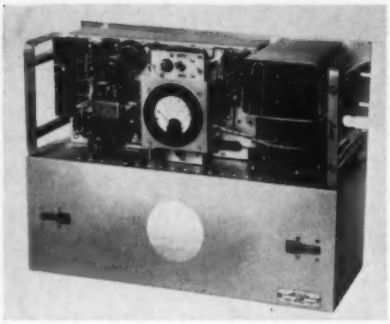


received line signals. Absolute synchronization is produced, Lenkurt states.

The new panel was developed specifically, the company says, to meet the new requirements of frequency-shift telegraphy, which is scheduled for large-scale nationwide use next year in the Bell System's mechanized TWX program.

Regulator panels for Channels 2 and 3 have been available since the 33A system was introduced in 1948. Except for filter frequencies, regulator panels for all three 33A channels are identical.

Each panel employs its channel carrier frequency as a transmitted pilot, which on reception is split into two parts by a narrow-band filter, amplified, and routed through separate circuitry to perform the tasks of regulation and synchronization.

A plus feature pointed out by Lenkurt is that the new panel can, if necessary, be placed—without special arrangements—up to 100 feet away from the rack it is to serve. Request NP-1686.

•

DESK-SIZE COMPUTER—Burroughs Corp. has integrated its Series E desk-size computer with a 10-total typewriter accounting machine to provide what it states is the only electronic business data processing system in its price range with alphanumeric capability.

The alphabetical feature is claimed to eliminate the need for additional units to write descriptive information on accounting forms.

A re-manufactured system, complete with the new 10-total typewriter accounting machine, sells for $29,000. Burroughs points out this puts true electronic data processing capacity within reach of scores of small and medium-sized business customers. The system rents for $1,200 monthly.

Programmer training is reported to amount to just a few hours because of the simplified external pinboard command process. Further extending the versatility of the computer is "Triplex input," which allows data to be fed into the system by adding two punched paper tape readers and a punched card unit, or three tape units. A third option is two punch card units. Output can be either by a tape or card punching device, or both.

The compact, desk-size data processing system is presently in use, Burroughs says, at more than 150 installations on such applications as tax utility and general billing, sales analysis, accounts receivable and payable, and sales

distribution. Earlier models of the Series E computer have been used for engineering and scientific problem-solving since 1955. Request NP1687.

National Capital Chapter ITPA Meets, Elects Officers

The annual meeting of the National Capital chapter of the Independent Telephone Pioneer Association was held recently in the Department of Commerce Auditorium in Washington, D. C. Various social activities and technical meetings were planned for the coming year.

Plans are also being made to publish a roster of the chapter membership. A copy of this roster will be furnished each member.

The following directors were elected: James T. Bedsole, Percy G. Black, Ray Blain, Joseph A. Cheeseman, Russell E. Payne, Leon F. Roberts, Charles E. Ross.

Officers elected are Ray Blain, president; Russell E. Payne, first vice president; Joseph A. Cheeseman, second vice president; Donald R. Edge, treasurer; W. P. Stokesberry, secretary.

Committee Chairmen are H. F. Bauserman, auditing; W. Rodney Adams, entertainment; Richard W. Waters, membership; Dorothy E. Felder, ladies membership; Charles R. Ballard, program; Ronald C. Davies, publicity; Marian J. Bailey, correspondent.

IN THE NATION'S CAPITAL

Continued from page 18

Washington to answer press queries about the program. One question which kept sneaking into the conference like a stray dog in church concerned the government's rights to inventions developed by AT&T. The journalists got the impression that NASA was sitting in a poker game with a sleeve full of aces.

The repartee is particularly interesting in view of the legislative proposals pending on Capitol Hill which would require the federal government to take title to all inventions resulting from government-sponsored research (see "In the Nation's Capital," TELEPHONY, June 10 issue, p. 18).

"*Question:* Mr. Johnson, Mr. Seamans said earlier that after you gather experimental data from both the relay and from the Bell System you will then proceed with the design of a national satellite. What happens if you have to, say, pick up this Bell transponder, this 3-watt traveling wave tube? What becomes of their proprietary interest in that machinery?

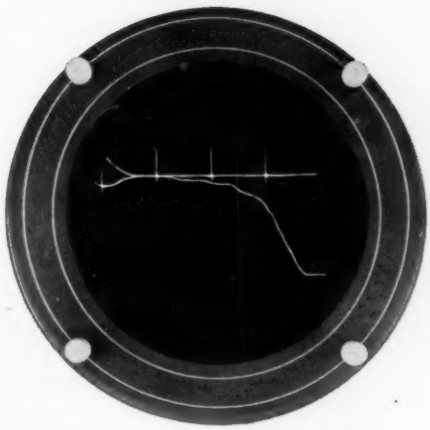
"*Johnson:* We have negotiated some very specific arrangements concerning patentable inventions that might be produced in the course of performing this agreement by AT&T. Insofar as inventions can be identified as having been produced in the course of this work, the government will have a royalty-free license for the practice of those inventions by, or on behalf of, the United States government throughout the world. This license will also extend to certain foreign governments that have rights under existing treaties with us.

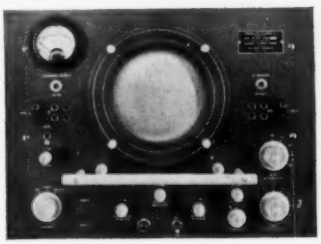
"That government license doesn't extend by its terms to the commercial application, but in order to take care of the non-governmental interests which might be considerable in this case, if we have private ownership of the system, we are reserving the right to grant licenses on whatever terms the administrator of NASA may deem in the best interests of the United States, and this could include royalty-free licenses, to any parties.

"To be specific about this, this would enable us, if a joint venture, such as FCC seems to currently contemplate, comes into being, to grant to that joint venture and to all of the parties to the joint venture that have an ownership interest in the resulting system, royalty-free licenses in these AT&T inventions.

"In addition to that, it would enable us to grant licenses to any of the

*TRANSMISSION CHARACTERISTICS OF A 22H88 FACILITY AS DISPLAYED BY THE NEW HALLAMORE TMS-0100 SWEPT BAND TRANSMISSION MEASURING SET





*Typical Pattern: The horizontal trace is a reference line with frequency markers each 1000cps. Irregular line is the loss vs. frequency characteristic of a 22H88 facility, 54,000' in length, showing losses of 8.0db at 1000cps, 8.5db at 2000cps, and 10.0db at 3000cps. Fast, precise transmission measurement and the availability of a permanent photographic record of readings are prime advantages of the Hallamore Swept Band Transmission Measuring Set. Designed and developed in the Hallamore Electronics laboratories, this unique instrument provides a continuous display of transmission characteristics, as illustrated. Range is from 200cps to 4000cps. Applications include measurements of repeater or amplifier gain; determination of return losses; and location of loading faults. This is a valuable everyday tool for the engineer or technician. For further information please write Hallamore Electronics Company, Telephone Department, 714 No. Brookhurst St., Anaheim, California. PR. 4-1010

TMS-0100 ACCESSORIES

HYBRID TEST SET • ARTIFICIAL LINES

CAMERA ATTACHMENT • TEST WAGON

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component manufacturers who might be interested in bidding on the production of items.

"You will recall that the FCC notice states that one of the principles that will govern this system is the freest possible competition in the production of items for the satellite system or for any of its associated equipment, and that neither patents nor any existing monopolistic position shall inhibit that freedom of competition.

"So we will be in a position with regard to all those AT&T inventions to grant licenses to such companies . . .

"Although the NASA patent law only relates to inventions made in the performance of agreements with NASA, in this case, recognizing the unusual position of AT&T and the unusual circumstances here of a commercial operation being contemplated, we have gone beyond inventions that might be strictly determined to be made under the agreement, and we have agreed with AT&T that with respect to other inventions that might be made during the period of this agreement, beginning on May 18 of this year and running through to the end of the launch phase, that if they make any inventions during that period in the course of performing AT&T's sponsored research and development projects that are directed toward improving the art of satellite communications, that we will have a royalty-free license for the government so far as those inventions are concerned also, and will be able, in those cases, to grant royalty-free licenses to others for the use of those inventions in satellite communications systems or in the production of components for employment of those systems.

Telephone Utilities of West Virginia recently cut over its central offices at Marlinton, Arbovale and Frankfurt to United States Instrument Corp. motorswitch systems. Total amount of equipment installed was 980 lines and 3,000 terminals. The three exchanges were formerly served by magneto systems. Above, Harold G. Payne, right, president of Telephone Utilities, makes final equipment check at Arbovale. George Baker, USI's customer service manager, watches.

"Question: But the patent, the licenses you will get, the application of those licenses, will be strictly limited to this commercial satellite system? The government couldn't license the use of an AT&T invention to, say, some party not connected with the commercial satellite program?

"Johnson: Insofar as inventions identified as having been made in the performance of this cooperative agreement are concerned, the right of the administrator of NASA to license those inventions for any purpose whatsoever is unlimited. And this is not in any way limited to use in the communications satellites system or even in the field of communications generally.

"Regarding the other AT&T inventions which I mentioned—which are the result of AT&T-sponsored research independent of this cooperative agreement made during this period—there our rights to license are related to satellite communications; that is, either to the use in the communications system or in the employment of those inventions in the production of components for it.

"This way we feel we have effectively prevented any possibility of AT&T developing or increasing a monopolistic position during this period as a result of their inventive activity which might be supported by the United States.

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Independent Telephone Corporation's system comprises fourteen subsidiary telephone companies operating in the states of Florida, Michigan, Missouri, New Jersey, New York and West Virginia.

"Question: If I understand you correctly, you are, by administrative action, extending your authority over license-free arrangements on patents.

"Johnson: We are. We are going beyond what the National Aeronautics & Space Act requires as a minimum, and we are obtaining by contract here certain additional rights in AT&T's inventions; that is correct."

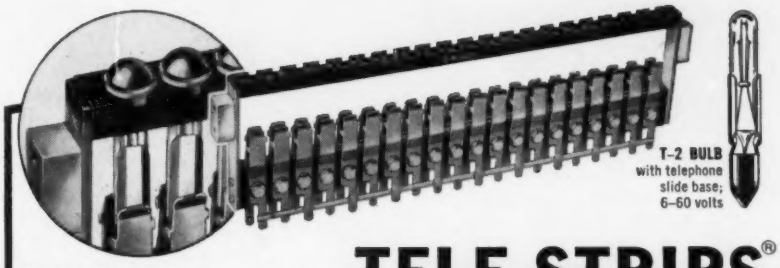
FCC Reorganization Law Now Up To White House

The Senate and House have passed a new bill to reorganize the FCC following earlier rejection by the House of President Kennedy's reorganization plan. The White House plan was killed mainly because it would have made changes in the Federal Communications Act and its procedures which Congress prefers to make for itself and because of an excessive delegation of power to the FCC chairman. The FCC chairman holds office "at the pleasure of the President," and that is why the House killed the plan. The Senate gave its approval without apparent opposition to a bill by Senator Pastore (D., R. I.) which attempted to remove these objections.

The Pastore bill, which differs little from the House-approved version, should result in a notable improvement in the operations of the FCC. Under the Senate bill, the FCC would be able to break up into divisions for the hearing and adjudication of cases. The commission could even delegate any of its functions to an individual commissioner, to any employe, or a panel of employes. This would greatly enlarge its capacity to dispose of cases and eliminate the delays that have plagued the commission in recent years.

The commission would still retain control over important policy matters through provisions for review by the full FCC of any panel decision or individual action at its own discretion. Oral arguments, too, would be made discretionary, thus permitting further flexibility. In other words, this measure removes restrictions which now prevent the commission from using its review staff effectively. The FCC has been asking for these reforms for a long time and now appears to be unanimously in favor of the Pastore Bill.

Instead of the highly controversial White House plan to give the chairman legal authority to assign FCC personnel, the Senate bill leaves the commission itself full authority to entrust its chairman with this power or exercise it directly. The difference is this: if the chairman had the power by law, he might become a regulatory despot. If he gets the same authority from the commission, he becomes its agent sub-



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For switchboards and other applications requiring multiple indication with T–2 lamps.

DIALCO **Tele-Strips** are available in several styles, and in sizes to accommodate from 2 to 20 Lampholders per strip. Choice of Lens Caps and Colors, or less lens caps for use with designation cards. Also: **Tele-Strips** made to specifications. Submit problem for recommendations.

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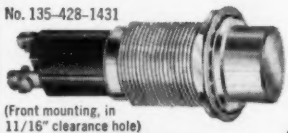

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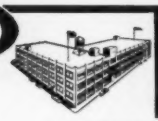

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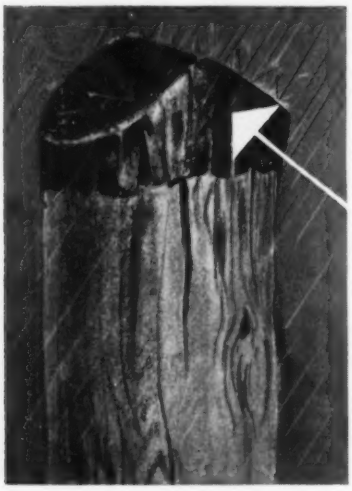
Over 600 various items of Line Construction Tools, Maintenance & Pressure-Testing Equipment in stock for immediate shipment

STOP ROOF DECAY THIS LOW COST WAY



USE IMPROVED OSMOSE POLE TOPPERS

Fungus decay, plus shrinking-swelling, freezing-thawing of moisture, can wreak havoc with your pole tops. And the damage can quickly extend right down to the crossarm area to cause expensive replacement of the whole pole. Why invite trouble? Take positive action now for long-lasting pole top protection.

The OSMOSE Pole Topper is a thick, reinforced cap. Applied with special 10% penta Pole Topper Fluid, it provides many years of extra "top life." Comes as a simple do-it-yourself unit. Lightweight, easy to carry and clean to handle. Can be applied in only one minute. Fits snug and will not crack or peel. For use on new and salvage poles in the yard, as well as standing poles.

OSMOSE Pole Toppers can be applied under contract or by your own linemen. Keep a supply on every line truck as standard equipment. For complete details, including special Pole Topper Fluid, write: Osmose Wood Preserving Co. of America, Inc., 976 Ellicott St., Buffalo 9, N.Y.

OSMOSE

SERVING UTILITIES SINCE 1935

ject to its control, for if the power should be abused it could be withdrawn.

This bill may accomplish the objectives of the reorganization plan without the risks that the latter entailed. Since the Senate bill in some respects resembles the President's recommendations and since Congress has shown that it will not support the full Presidential proposal, President Kennedy is practically forced to sign the bill if he wants any legislation on this subject.

General Systems Win E&P Award for Second Year

For the second successive year, the General Telephone System's newspaper advertising for its operating telephone companies received high honors from *Editor & Publisher*, a leading publication in the newspaper field.

The special "Citation for Effective Newspaper Advertising" was given to General Telephone advertising on additional telephones in the home. The ads which have appeared under the headline, "Reach . . . Don't Run," told of the benefits and low cost of additional telephones in various parts of the house.

The article announcing the honor stated that these ads appeared in 1,000 newspapers in 31 states serviced by the 16 operating telephone companies which are a part of General Telephone & Electronics Corp.

A year ago, *Editor And Publisher* selected General's "Telephone Fair" advertising and promotion for this same award.

Traveling Chief Operator's Job Texas Feature Story

The career of Mrs. Winnie B. Burnett, traveling chief operator of Southwestern States Telephone Co., Brownwood, Tex., was featured in a five-column story in the women's pages of the Brownwood *Bulletin*, on Sunday, July 9.

One of the busiest women in telephone traffic in the Southwest, Mrs. Burnett assists chief operators in Texas, Arkansas, Louisiana, and in Oklahoma, and travels 310 days a year in performance of her work. She also writes instructive material on traffic procedures for Southwestern States, and works closely with the traffic engineer and traffic supervisor in planning future service.

Mrs. Burnett speaks before many groups, has been on the program of a number of state telephone conventions, and has written various articles for publication. She authored the series, "T.O.P. Topics" which appeared in TELEPHONY (Jan. 9, Feb. 6, Apr. 23, May 7, and July 16, 1960).

WINNIE B. BURNETT

The hard-working telephone careerist started her work in March, 1930, with Southwestern Bell Telephone Co. in San Antonio; served, during WW II, with the Naval Air Station Communications office at Corpus Christi; and then entered the Independent telephone field with San Marcos (Tex.) Telephone Co. She has been with Southwestern States since 1953.

A native Texan, Winnie Burnett practices her own advice—"act like a lady, think like a man, and work like a dog." Ever enthusiastic about telephony, she recommends that beginners work hard, and strive to learn, and learn more.

Respected by co-workers and the industry, she has served as chairman of the traffic committee of the Texas Telephone Association, headed the Texas chapter of ITPA, and is presently a board member, and participates in the activities of various local and national business and professional groups.

In her private life, Mrs. Burnett, a grandmother, finds time to teach a Sunday School class, and take an interest in the family's Texas ranch.

Onan Names Winners in Generator-Use Contest

Onan, division of Studebaker-Packard Corp., has named the winners out of hundreds of entries in a contest specifically seeking the best practical applications for electric generating plants that have never been used before.

Advertisements promoting the contest appeared in TELEPHONY earlier this year.

Winners received a 1,000-watt portable generating plant as a prize. They ranged from a priest in Puerto Rico to an engineer with the hydro-electric power commission of Ontario, from a New Hampshire corporation president

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ON THE LINE

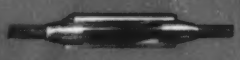
Puregas Air Dryers are available with capacities for any specific system. The air dryers are fully automatic, completely integral units all employing the dependable, trouble-free refrigeration drying principle.

J31 Pressure Guard

An around the clock pressure check, the J31 Pressure Guard (cable or pole-mounted) alerts crews to low cable pressure levels before moisture can start trouble.

Cable Pressurization Computer

A real time saver for performing the mathematical computations required for analysis of cable pressure systems. The PEC Pressurization Slide Rule lists pneumatic resistances for all gauges and pairs of cables. Computations can be made for flow, pressure drops, distance and pneumatic resistance, etc.



Semper•Seal

A permanent, clear cable splice and plugging compound, Semper•Seal forms a weather and gas-tight seal while providing perfect cable encapsulation.

Spray Leak Detection Kit

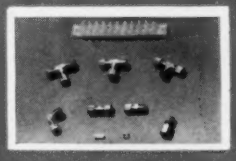
A complete, easy to use Kit makes possible the use of the spray leak test method of locating cable sheath breaks at low cost.

DP25A Dual Pressure Panel

Pressurized dry air can be supplied at two different pressures from Puregas Air Dryers by employing the DP25A Dual Pressure Panel or kit.

POLY-COR Tubing

Light, flexible, simple to install Poly-cor instrument tubing available with 3, 5, or 10 coded ¼" tubes in moulded harness. Poly-cor tubing is used to pipe pressurized dry air from meter panels to cables.

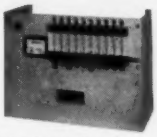


Miscellaneous Fittings

Assorted fittings are available from Puregas for making pressure tight Poly-cor and copper tubing connections.

AO-1 Automatic Oiler

The new AO-1 oiler maintains correct oil level and increases the oil capacity of any X-2 Compressor.



MP25A Meter Panel

Puregas Field Proven Meter Panels measure and distribute pressurized dry air to toll, trunk and exchange cables. Available with banks of 3, 5 or 10 air flow indicators, the MP25A will determine when maintenance is required on the outside cable plant.

Model 600PM Air Dryer

Designed for outdoor operation, this pole mounted 600 std. cu. ft. per day unit supplements central office equipment as a booster pressure source on long cable runs. Also ideal for microwave transmission, railroad and bridge cable applications.

Model 600 Air Dryer

This economical "Packaged Pressure Source" was specially designed for small telephone exchanges, CDO's, repeater, toll cable stations, railroads and other various communication networks. This unit, providing 600 std. cu. ft. of dry air per day, is available with a factory mounted meter panel.

Model 750 Air Dryer

A 750 std. cu. ft. per day Pressure Source available to pressurize small to medium size exchange cable plants.

Model 1500 Air Dryer

This 1500 std. cu. ft. per day unit is sized to pressurize cable plants of medium to large telephone exchanges.

Model 5000 Air Dryer

This 5000 std. cu. ft. per day Dry Air Source will pressurize the cables of large telephone exchanges and central offices.

Send today for the Puregas Cable Pressurizing Catalog or for the specific literature you need.

Data Sheets:

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- ☐ *Bulletin 120—Cost Comparison—Dry Air vs. Nitrogen*
- ☐ *Bulletin 130—Cable Plugging Practices*
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- ☐ *Price Schedule (Air Dryers, Meter Panels, Tubing, Accessories)*

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ADC

PLUGS, JACKS,
JACK PANELS,
PATCH CORDS,
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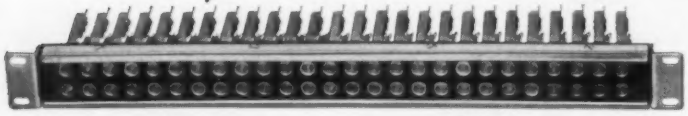

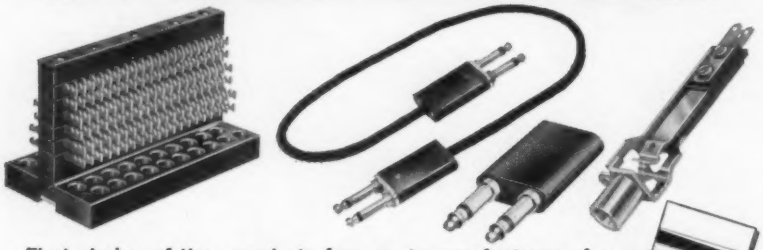

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Write for Communications Component Brochure.

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CONDEX* MULTIPLE CONCRETE CONDUIT

Special fittings—miters—short lengths—expanded web sections available, also adapters to claytile, transite and fiber duct.

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American Pipe and Construction Co., 101 Alquire Rd., Hayward, Calif. Tel: JEfferson 7-2072
American Pipe and Construction Co., 518 N.E. Columbia Blvd., Portland, Ore. Tel: BUtler 5-2531
Concrete Conduit Corp., 130-01 Northern Blvd., Corona, N. Y. Tel: ILlinois 7-1515
Chicago Pre-Cast Products Corp., 29W629 North Aurora Rd., Naperville, Ill. Tel: EL 5-2700—2701
Denver Concrete Products Co., 5020 Marshall, Arvada, Colo. Tel: HA 2-4202
Eastern Pre-Cast Corporation, 675 Main St., Tullytown, Pa. Tel: Windsor 9-3750
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Pre-Con of Quebec, Ltd., Montreal, Quebec, Canada. Home Office: Brampton, Ont. Tel: HUdson 1-3942 (Toronto)
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GAGNE ENTERPRISES, INC.
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to a Florida radio broadcasting company executive.

Redman General of Kentucky Vice President-Revenue

Donald A. Redman, controller of General Telephone Co. of Kentucky, has been elected to the additional position of vice president-revenue requirements, F. C. Rahdert, president, announced on July 27.

D. A. REDMAN

In this additional position, Mr. Redman replaced Ernest F. Mercer, who resigned. The change was effective, Aug. 1.

A native of Indiana, Mr. Redman was graduated from Gannon College, Erie, Pa., in 1952 with a bachelor of science degree.

He started his telephone career in 1947 in the treasury department of General Telephone Co. of Pennsylvania at Erie. He subsequently held positions in the secretary-treasury and accounting departments of that company.

Mr. Redman transferred to General Telephone Co. of Kentucky in 1956 as assistant controller. He was elected controller in 1960.

The General of Kentucky executive is a vice president of the Lexington chapter of the National Association of Accountants.

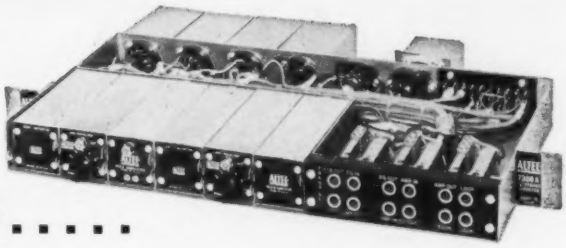
CF&I Names F. M. Barry N. Cal. Sales Manager

Frank M. Barry has been appointed district sales manager of the Colorado Fuel & Iron Corp.'s Northern California district according to J. N. Counter, general manager of sales, Western division.

Mr. Barry has been serving as assistant to the district sales manager since June 1959. He worked previously as assistant to the Realock product manager, having joined CF&I in 1950 as a Realock sales representative.

2—4/4—4/2—2

SAVE TIME & SPACE WHEN ESTABLISHING REPEATERED VF TELEPHONE CHANNELS . . . . .



Altec 7300A Telephone Repeater Terminating Unit comes wired for rapid assembly of three repeater systems!

• power and space economy • superior performance • minimal heat generation • eliminates 130 v supply • reliability • plug-in modularity • simplified installation

The Altec 7300A TRTU provides rapid means of establishing repeatered VF telephone channels for general telephone, telegraph, teletype circuits, and PBX installations. The 7300A comes fully wired to receive plug-in type Altec circuit components that may be easily assembled for one of three telephone repeater systems: two-wire to four-wire termination, four-wire intermediate, two-wire to two-wire.

The compact unit occupies only 1¾" rack height on standard 19" channel relay rack. An insulated jack strip with 12 jacks permits routine system testing. Transistor amplifiers within the unit are energized by local battery or either 24-26 or 48-52 volt special power supply. 130 volt supply is not required.

The 7300A and the entire Altec line of plug-in repeater amplifiers, equalizers, networks, transformers, relays and pads is available for speedy delivery, normally from stock. For technical details and schematics on the 7300A, write for FREE Bulletin #13783-1, Dept. TA-8.

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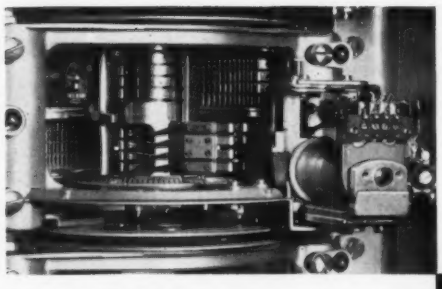

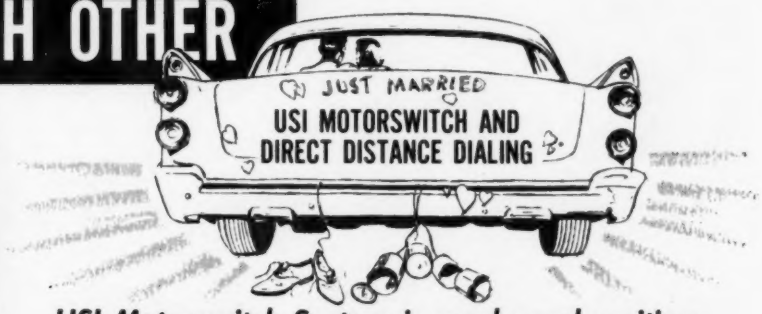

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3. Simplified intercept of dead numbers.
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Type D — a truly great extension ladder built in strict accordance with safety regulations. Rungs are second growth hickory, reinforced with steel rods and equipped with special automatic locks and Duo-Safety's famous Safety Shoes. Made with either straight or parallel side rails, Type D is available in one, two or three sections — in a large variety of sizes. Write for free catalog on all Duo-Safety ladders.

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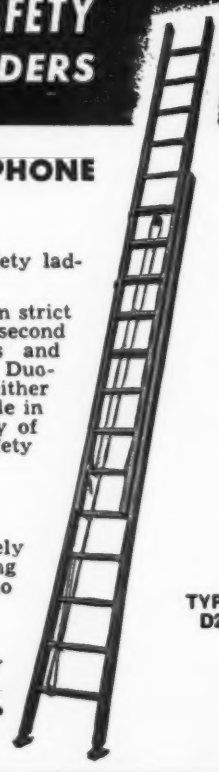

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Signal Corps Gives RIQAP Awards for Quality Control

The U. S. Army Signal Corps has honored various firms by presenting to them its "RIQAP" award. These letters stand for "Reduced Inspection Quality Assurance Plan" and the award is the highest quality recognition and honor the Signal Corps can bestow on a manufacturer.

The purpose of RIQAP is to minimize the cost of inspecting supply and equipment deliveries by taking proper advantage of the quality control-inspection services maintained by the manufacturers. The Army is assured of the highest quality electronic products because RIQAP requires the most advanced quality control methods and test procedures.

Companies who qualify for the award receive a letter and a RIQAP certificate from the Commanding General of the U. S. Army Signal Supply Agency, acknowledging their high quality honor achievement.

Also, they are entitled to fly their own "Q" for quality pennant or flag. A pennant may be displayed for partial participation and a flag may be displayed by a plant where all government products manufactured are under the RIQAP program. The pennant and flag are orange and white.

Among telephone industry suppliers who are active RIQAP participants as of Apr. 1, 1961 are:

General Dynamics/Electronics Telecommunications Division and Military Products Division, both at Rochester, N. Y.; North Electric Co., Galion, O.; General Electric Co. at Clyde, N. Y., Scranton, Pa. and Owensboro, Ky.; Kleinschmidt, Division of Smith-Corona Marchant, Inc., Deerfield, Ill.; Motorola, Inc., Semiconductor Products Division, Phoenix, Ariz.; RCA, Harrison, N. J.; Sylvania Electric Products, Inc., Woburn, Mass.; Teletype Corp., Chicago, Ill.; Western Electric Co. at Allentown and Laureldale, Pa., Andover, Mass. and Elizabeth, N. J.; Chatham Electronics, Livingston, N. J.; Eitel-McCullough, Inc., at San Carlos and San Bruno, Cal., and Salt Lake City, Utah; Stewart-Warner Electronics, Chicago, Ill. and Tung Sol Electric, Inc., East Orange, N. J.

Among companies listed by the Signal Corps, that have qualified for RIQAP but are not now actively participating as of Apr. 1, 1961, are:

General Cable Co. at Monticello, Ill. and Providence, R. I.; Dictaphone Corp., Bridgeport, Conn.; Hallicrafters Co., Chicago, Ill.; Hammarlund Mfg. Co., New York, N. Y.; Okonite Co., Paterson, N. J.; Phelps Dodge, Bayonne, N. J.; Plastic Wire & Cable Co., Jewett City, Conn; Rome Cable Co., Rome, N. Y. and Wilcox Electric Co., Inc., Kansas City, Mo.

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but you get much more with the All-Weather Core!

	MULTI-PAIR	
	SUPERIOR IM RDW	IM RDW REA
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Inlaid Color-Coding Strip†	YES	NO
High Density Polyethylene Insulated Conductors	YES	YES
Core Tape	YES	YES
Developed by Superior Cable Corporation	YES	YES*
Can Use Inexpensive Terminations and Fittings	YES	NO
Can Withstand Planned or Accidental Exposure to Sunlight	YES	NO

PRICE: *The all-weather core costs no more!*

Both Cables Rate EXCELLENT in:

Electrical Characteristics
Degree of Potential Salvage
Resistance to Installation Damage
Resistance to Lightning Damage
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Moisture Resistance

Take your choice—Integrated Messenger Rural Distribution Wire, with or without the All-Weather Core. Superior makes both types—and sells both types . . . but SUPERIOR IM-RDW with the exclusive All-Weather Core is your better buy! Check the chart and you'll see why.

† Patent Applied For
* Limited Adaption of Superior's Original Design

ALL-WEATHER CORE permits splicing or terminating without the need of restoring jacket. Constant exposure to weather does not affect physical or electrical characteristics.

COLOR-CODING STRIP of monofilament polyethylene, inlaid† permanently in conductor insulation, will not flake off, scratch off or absorb moisture.

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Save you money 4 ways

PENGO HEAVY-DUTY Twin Helix Augers—14" through 96" hole diam.

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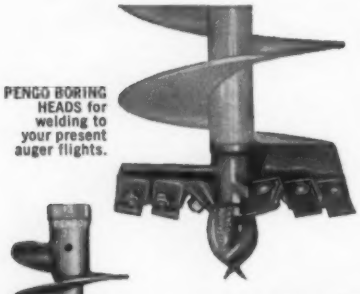
3 **COST FAR LESS TO MAINTAIN** ...reversible teeth cost only 90¢ each, pilot bit only $8.00. Parts interchangeable on all PENGO augers you are using...less inventory!

4 **A SIZE AND TYPE FOR EVERY DRILLING JOB**



PENGO BORING HEADS for welding to your present auger flights.

PENGO FLIGHT AUGERS and ANCHOR AUGERS—6" through 36" diam.

IF IT'S AUGERS YOU WANT, WE HAVE 'EM—JUST ASK US!

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13-B

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Santa Clara, California

NEW DEVELOPMENTS IN TELEPHONY

Continued from page 20

One circuit is required for each central office trunk.

•

Line Busy Lamp Field Unit. (Fig. 45). This Leich line busy lamp field unit can be added to the 40A PBX Turret. This unit provides a busy visual condition to the attendant operator whenever an extension line is in use.

To mount the busy lamp field on the 40A turret, two long mounting screws are used in place of the regular shorter screws that mount the housing on the 40A turret.

•

Pole-Mounted Air Dryer (Fig. 46). Puregas Equipment Corp. recently introduced the Model 200 pole-mounted air dryer. This unit has been developed to meet the requirements for an economical outdoor pressure source to supplement the central office air dryers, and it offers applications in constant flow pressure systems.

When aerial cables extend a considerable distance from the central office, this pole-mounted unit can be used to boost pressure towards the cable ends and back towards the central office dryer. This arrangement ensures maintaining effective minimum pressure along the entire cable run.

This unit is also recommended for use in small exchanges, community dial offices, repeater stations, etc., where space is at a premium. The air dryer can be mounted on a wall inside or outside the building, or on the nearest pole. This model is also ideally designed and sized to pressurize coaxial transmission lines, wave guides, railroad tunnel and bridge cables and many other similar and diversified applications.

The Model 200 pole-mounted dryer unit employs a combination of compression, refrigeration, and chemical absorption principles to effect air drying for outdoor cable pressure systems. In operation, ambient air is compressed several atmospheres, then delivered to an insulated heat exchanger where the air is cooled by refrigeration to a temperature just above freezing. The combined effect of compression and cooling condenses the greater part of moisture vapor in the air stream to water which drains off to a condensate tank.

Cooled compressed air from the heat exchanger passes through a main desiccant tower where the remaining moisture vapor in the air is absorbed. From this tower, the air passes through a manifold containing a humidity sensing element and then through a reserve desiccant tower which removes any residue moisture vapor from the air stream.

The application of these principles reduces the relative humidity of ambient air from 100 per cent at high

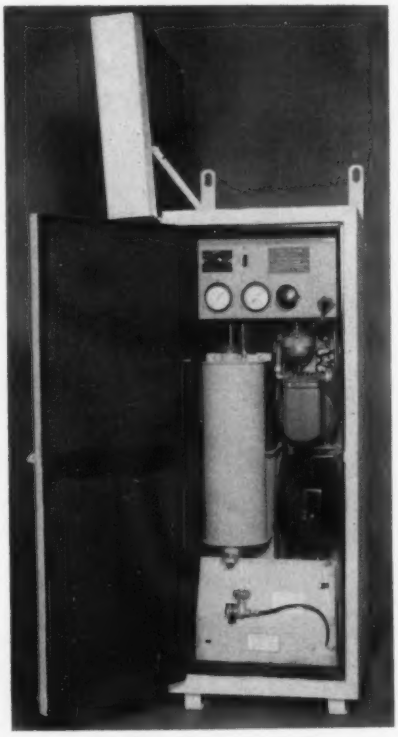


Fig. 46. Pole mounted air dryer.

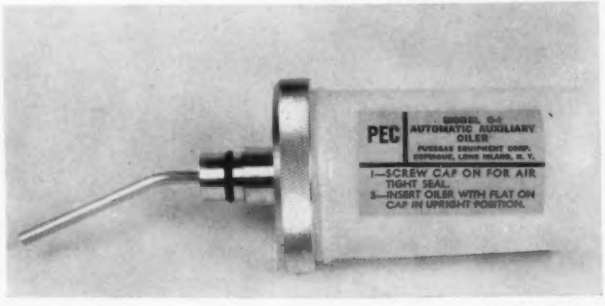
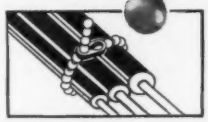


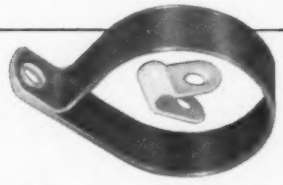
Fig. 47. Automatic auxiliary oiler.

Fastest, toughest tie you can buy!

Here's the fastest, surest way to bundle wire, coils, cords or you-name-it. No tying to it! Just loop one of these strong, durable, color-coded nylon-polyethylene wire ties around the bundle — pull to lock it securely — and it's done. These new wire ties, made from High Dielectric Polyethylene combine all these advantages:



- strong — breaking point 45–95 lbs.
- chemically inert
- heat resistant
- in red, blue, yellow for color coding
  also available in 101 nylon



You'll be surprised at the low cost of these rugged work-savers. Also available from Nylogrip: Nylon screws, nuts, Briloks® nuts, Dubo lock-washers, plastic clips. Send today for complete information and samples.

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By W. R. SPRIEGEL, EDWARD SCHULZ, and W. B. SPRIEGEL. This second edition of a famous work in industrial management covers all the important recent developments in the field. Outdated topics have been condensed or eliminated, and the best practice of modern supervision has been incorporated. Seven new chapters have been added. One is a unique treatment of the question of the supervisor's part in promoting mental health. Some of the other chapters cover the supervisor's role in motion and time study, interviewing, and materials control. Other additions to the second edition include an appendix on statistical quality control and many new illustrations. *1957. 349 pages. $6.00.*

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By W. CRAWFORD DUNLAP, Jr. Offers a survey of *all* the important aspects of semiconductors—from research to devices. Covers fundamental concepts, properties of materials, methods of measurement, and applications from a unified point of view. The treatment is almost entirely physical, the emphasis being on mechanisms and devices. It gives full coverage of germanium and silicon and discusses the properties of many other semiconducting elements and compounds. *1957. 417 pages. $11.75.*

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SPLICE ENCAPSULATION and CABLE PLUGGING SYSTEM

Proven Method for use on all types of

- **Multi-conductor Communications Cable**
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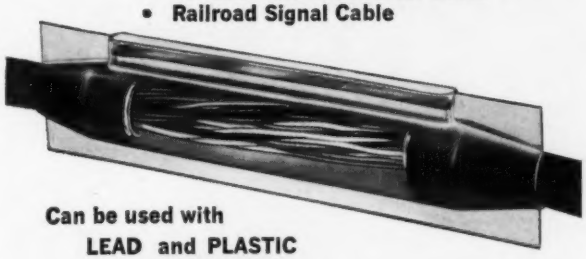

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Ideal for Aerial, Duct, Direct Earth Burial and Submerged Installations

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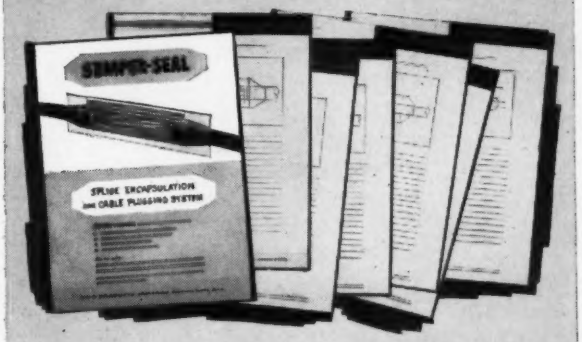

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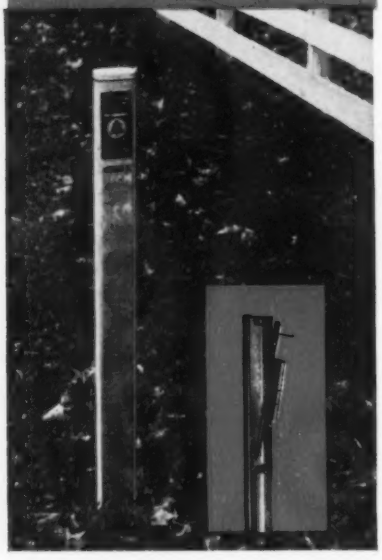
TERMINAL HOUSINGS
For Buried Wire & Cable



SPEED UP
Installation

You can save time and labor by specifying INDIANA Terminal Housings for your buried wire and cable jobs. The heavy No. 10 gauge steel stakes of the pedestal type can be driven into the ground. The cover plate can be attached or removed with ONE screw. All models are designed for ease in mounting terminal blocks and loading coils and in making splices or connections.

INDIANA Terminal Housings are heavily galvanized AFTER forming for longer life. Available in both pedestal and pole-mounted types and in four models capable of accommodating from one pair to 400 pairs.

Ask your distributor of telephone supplies or write for Bulletin No. TH-101R.

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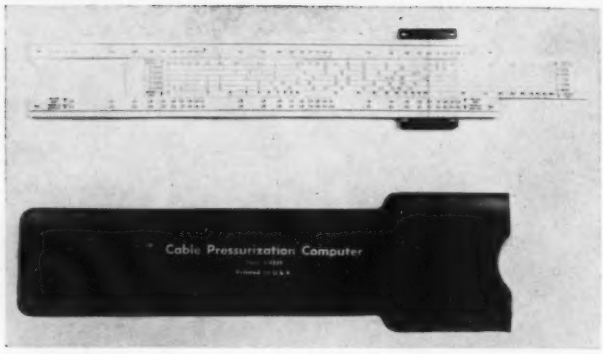

Fig. 48. Cable pressurization computer.

temperature to less than 2 per cent at 70 degrees F. for delivery to communication cables.

This unit is mounted in a cabinet 20 inches wide, 30 inches deep and 50 inches high. It weighs 310 pounds. If the humidity of the dry air ever rises above 5 per cent at 70 degrees F., the humidity relay will close to give a signal to the connected alarm system. This unit will deliver 200 standard cubic feet of dry air per day. This is equivalent to one tank of nitrogen. The pressure is adjustable from 0 to 15 pounds per square inch gauge.

The operation of this unit is fully automatic. The air drying circuit has only one moving part—the refrigeration compressor. The desiccant in the main tower must be changed when the humidity alarm operates, or every three months, whichever is sooner, otherwise, periodic inspections every three months are the only attention required. This unit can be mounted on a pole or building by the use of standard pole mounting hardware furnished.

•

Automatic Auxiliary Oiler. (Fig. 47). This automatic auxiliary oiler, by Puregas, is designed for use on all X-2 compressors used on cable pressurization. This is a safeguard to insure that there is a constant oil level maintained in the compressor. With the incorporation of this device, the oil capacity of the compressor is no longer of critical concern. In short, this device is used as an automatic oil level control and at the same time it increases the overall oil capacity of the compressor.

•

Cable Pressurization Computer. (Fig. 48). This Puregas computer can be used to quickly and accurately make all calculations in connection with the pressurization of cable. It can be used when computing the pressure drop when one size and gauge of cable is involved. It will also compute the pressure drop when two or more sizes and gauges of cable and/or parallel cables are involved. It converts distance to pneumatic resistance or it converts pneumatic resistance to distance. In brief, it is an instrument for quickly and easily performing the mathematical computations required for cable pressure analysis which are based on the computation of flow and pressure drop.

G-E Realigns Microwave Setup, Sutter Sales Head

General Electric's communications products department at Lynchburg, Va. has realigned its microwave organization, creating several new functions and positions.

G. R. Petersen, the department's marketing manager, said Walter E. Sut-

ADLIGHTERS
• Immediate Shipment
• Enameled Wrap Around

PRINCESS TRADE STYLE ON REVERSE SIDE

Other styles feature
HOME INTERPHONE
CALL DIRECTOR
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ter, previously General Electric's national microwave sales manager, has been named manager of microwave systems and sales and service.

W. E. SUTTER

Mr. Sutter will have responsibility for coordinating all marketing activities relating to microwave, including headquarters and field sales, systems engineering and customer services. He will have similar responsibility for carrier-multiplex and data equipment.

Mr. Petersen said the new organization is in line with General Electric's "complete system" concept, giving one group complete responsibility for all phases of a microwave contract, from the time the order is signed through the maintenance period after the equipment goes on the air.

Reporting to Mr. Sutter will be Al Caldera, formerly field engineering manager, who has been appointed customer services manager and who is responsible for installation and maintenance services for G-E equipment; Wayne E. Evans, formerly district sales manager at Kansas City, who becomes national microwave sales manager in Lynchburg and who directs the headquarters and field sales unit; and Peter G. Smee, who retains the title of manager of microwave systems engineering and provides technical assistance to the sales and service organizations through his unit.

Reporting to Mr. Evans in newly-created positions are Franklin L. Harper, who has been named RF systems sales manager, and Arthur W. Newman, carrier sales manager.

Mr. Newman, a veteran of 12 years in the common carrier industry sales field, will be responsible for the sales of General Electric's carrier products for microwave and cable in all markets. In addition, he will be in charge of national RF sales to common carrier mar-

cordsmanship

...have popular cords without really trying! Commercial Cord makes everything you need for switchboards: nylon-jacketed switchboard cords with or without plugs in four colors... operator cords in black or brown...every size, every type! ■ And don't forget — every cord for every use is yours from Commercial Cord. ■ You get instant delivery, too — Commercial Cord maintains large stocks all around the country. ■ Get catalog, samples or prices from Commercial Cord Co., Clifton Springs, N.Y. Distributed by: Leich Sales Corporation, 427 W. Randolph St., Chicago 6, Illinois; Automatic Electric Sales Corp., Northlake, Illinois.

COMMERCIAL CORD

Model TBM Mast provides complete service entrance facilities for outdoor telephone booths with the definite plus advantages of lower cost and easier installation. Raises power lines for specified ground clearance.

FITS MOST BOOTHS
Meets Code Requirements

LOOKS BETTER The TBM Mast is engineered for the job. Adds to the appearance of any booth.

LASTS LONGER Heavy gauge steel tubing used throughout for life-time service. Only heavy duty fittings used.

COSTS LESS Actual installations show savings up to two-thirds over conventional installations.

REMOVABLE. Can be moved from one location to another. Simply disconnect lines and pull mast out of ground sleeve.

Utility Service Co., Inc.
1620 THIRTEENTH ST. RACINE, WISCONSIN

kets including Independents, the Bell System, and Western Union.

Robert L. Manahan succeeds Mr. Evans as district microwave sales manager for the central part of the United States, with offices at Shawnee Mission, Kan.

Cumpstone Appointed Sales Manager of Whitney-Blake

John Brown Cook, president of Whitney Blake Co., has announced the appointment of Charles G. Cumpstone as sales manager.

C. G. CUMPSTONE

While Mr. Cumpstone was born and brought up in New Haven, Conn., he has spent the past 17 years in Chicago, Ill.

In 1945, Mr. Cumpstone opened Whitney Blake's first district office and served as district manager until 1958. During that year, he became manager of national telephone sales, the title he has just relinquished.

As sales manager for Whitney Blake, Mr. Cumpstone will make his headquarters in New Haven.

He is a member of the Independent Telephone Pioneer Association.

Burchett, 1st Scholarship Winner, Joins GD/E

James R. Burchett, winner of the first Stromberg-Carlson engineering scholarship in 1956, has joined the network design group of General Dynamics/Electronics' Telecommunication Division. Jim is the son of the well-known sales representative Vic Burchett who covers Minnesota, North Dakota and South Dakota for the company.

Jim's responsibility at General Dynamics/Electronics will be the design of networks for electronic circuitry to be used in communication and control systems.

Design work on a carrier filter was one of Jim Burchett's first jobs at Rochester, N. Y., plant of General Dynamics/ Electronics. Here he discusses the filter with his supervisor Peter J. May, left.

He began his work in June, shortly after graduation from the University of Minnesota. He received his bachelor of electrical engineering degree upon completing the five-year course at the Institute of Technology of the Minneapolis school.

Jim spent the early part of his life in Southern Iowa and attended high school in Redwood Falls, Minn., where he was valedictorian of his graduating class.

Jim's father, Victor Burchett, has spent most of his career serving the Independent telephone industry. He joined the Stromberg-Carlson sales team in 1946 and previous to that had served as manager of several Independent telephone operating companies.

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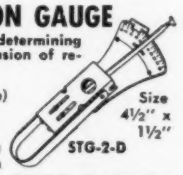

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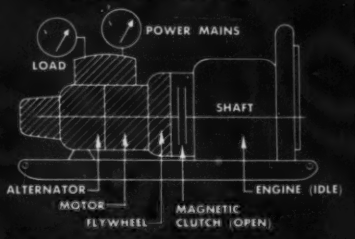

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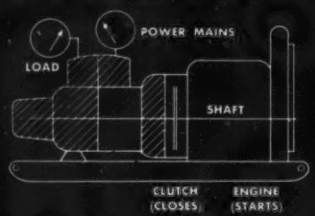
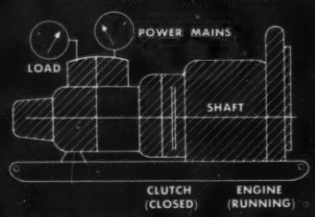
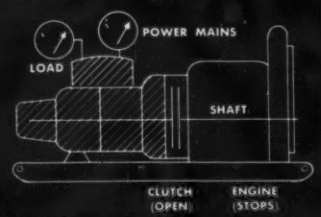


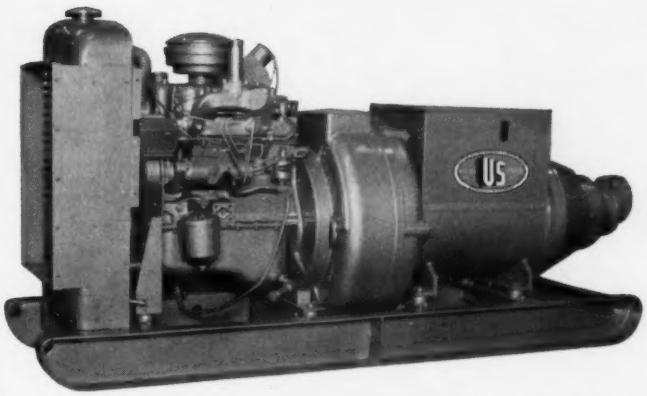
COMMERCIAL POWER MAINS FAIL. LOAD SUPPLIED TEMPORARILY BY FLYWHEEL. STANDBY ENGINE STARTS, MOTOR DISCONNECTED FROM MAINS.



STANDBY ENGINE AND ALTERNATOR SUPPLY POWER TO LOAD. SWITCHOVER ACCOMPLISHED WITHOUT LOSS OF USABLE VOLTAGE.



COMMERCIAL POWER RESTORED. LOAD SUPPLIED ONCE MORE FROM MOTOR AND ALTERNATOR.



New 5 KW MICRO POWER

Compact . . . Light Weight . . . Efficient MICRO POWER assures a constant source of stable voltage electric power regardless of prime power conditions. MICRO POWER serves as an independent power supply when there is complete commercial power failure, and as a voltage stabilizer when power from the prime source is at usable, but uneven value.

- no brushes, commutator, or slip rings to service, or replace, with new brushless generator
- optimum starting conditions
- squirrel cage motor with less than one percent slip
- electrical isolation from commercial source — voltage adjusting potentiometer
- magnetic amplifier regulator mounted directly on unit
- conservatively rated bearings

Authorized sales and service representatives in

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Let our "Revenue Men" show you

THE ADDED BENEFITS OF COMPLETE DIRECTORY SERVICE

Take a man like

Shigenobu Matsuda

"Shige" is one of our "Revenue Men" in Honolulu, Hawaii.

He grew up in a small sugar plantation town on the Island of Hawaii. His first goal was an education, and Shige completed the first phase at Laupahoehoe High School. He then joined the U. S. Army.

Immediately after his Army hitch, he set his sights on a college education. He earned a good part of his way through the University of Hawaii, and graduated in 1951.

His career field chosen, Shige immediately went to work gaining sales experience in several different product fields.

It was in 1957 that he joined General Telephone Directory Company as a sales representative in our Honolulu unit. Last year he was promoted to Sales Supervisor of the Honolulu unit.

Shige is a family man, and he and his wife have two young daughters.

Men like Shige Matsuda are an asset to any community. It's a common trait of the "Revenue Men" who work for the General Telephone Directory Company . . . and for you.

From A to Z, we can give you complete, quality directory service—sales, publishing and printing. Wherever you operate, our trained "Revenue Men" are nearby. They're working out of 35 strategic locations coast to coast.

Our "Revenue Men" act as telephone company representatives in their day-to-day contacts with your customers. They're not only salesmen—they are also good-will ambassadors for you, in their dealings with the public.

They're experienced hands at helping Independent Telephone Companies, both large and small. So why not let us build directory revenue and good will for you through our complete service? Write or phone if you'd like to discuss it—without obligation!

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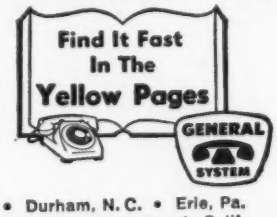

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